Final Report
Phase I RCRA Facility Investigation for Appendix I Sites

VOLUME I

SWMU-8, Fire Training Area 2

Department of the Air Force
Oklahoma City Air Logistics Center
Tinker Air Force Base, Oklahoma

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RFI REPORT

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List of Acronyms

AFB	Air Force Base
AOC	area of concern
BAT	best available technology
CAA	Clean Air Act
CAL	corrective action levels
CDM	CDM Federal Programs Corporation
CEC	cation exchange capacity
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm/s	centimeters per second
COD	chemical oxygen demand
COE	U.S. Army Corp of Engineers
CMS	Corrective Measures Study
CPT	cone penetrometer testing
DCA	dichloroethane
DCE	dichloroethene
DERP	Defense Environmental Restoration Program
DNAPL	dense nonaqueous-phase liquids
DOD	U.S. Department of Defense
DWS	drinking water standards
EC	electric conductivity
EID	Engineering Installation Division
EMO	Environmental Management Operations
EPA	U.S. Environmental Protection Agency
ES	Engineering Science
FID	flame ionization detector
ft/ft	foot per foot
FTA2	Fire Training Area 2
HCl	hydrochloric acid
HRS	Hazardous Ranking System
HSWA	Hazardous and Solid Waste Amendments
IRP	Installation Restoration Program
IT	IT Corporation
IWTP	industrial wastewater treatment plant

List of Acronyms (Continued)

LSZ	lower saturated zone
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
m^3	cubic meters
msl	mean sea level
MW	monitoring well
NAAQS	National Ambient Air Quality Standards
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O.D.	outside diameter
OU	operable unit
PA/SI	preliminary assessment/site investigation
PCE	tetrachloroethene
PID	photoionization detector
PVC	polyvinyl chloride
QC	quality control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RI/FS	remedial investigation/feasibility study
ROD	record of decision
SARA	Superfund Amendments and Reauthorization Act
SOP	standard operating procedure
SP	self potential
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TCA	trichloroethane
TCE	trichloroethene
TDS	total dissolved solids
TSD	treatment, storage, and disposal (facility)
TOC	total organic carbon

List of Acronyms (Continued)

TPH	total petroleum hydrocarbons
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USZ	upper saturated zone
VOC	volatile organic compounds
WQS	Water Quality Standards
yd^3	cubic yards

Executive Summary

This report provides a summary of the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) conducted at solid waste management unit (SWMU)-8, Fire Training Area 2 (FTA2), Tinker Air Force Base (AFB), Oklahoma. The report has been prepared to determine whether hazardous constituents as defined by federal regulations have been released into the environment from the FTA2. The RFI for this unit has been conducted in accordance with the Work Plan prepared by CDM Federal Programs Corporation (CDM) (1992). This RFI Report presents the following information:

- Site characterization (Environmental Setting)
- Source definition (Source Characterization), if any
- Degree of contamination (Contamination Characterization)
- Identification of actual or potential receptors
- Analytical results and analysis (data analysis)
- Identification of groundwater protection standards and action levels for the protection of human health and the environment (protection standards)
- Conclusions and recommendations for future work.

Tinker AFB is located in central Oklahoma, in the southeast portion of the Oklahoma City metropolitan area, in Oklahoma County. The Base is bounded by Sooner Road to the west, Douglas Boulevard to the east, Interstate 40 to the north, and Southeast 74th Street to the south. The Base encompasses 5,000 acres.

Background. Tinker AFB began operations in 1942 and serves as a worldwide repair depot for a variety of aircraft, weapons, and engines. These activities require the use of hazardous materials and result in the generation of hazardous wastes. These wastes have included spent organic solvents, waste oils, waste paint strippers and sludges, electroplating wastewaters and sludges, alkaline cleaners, acids, Freon^{TM}, jet fuels, and radium paints.

In 1984, Congress amended the RCRA with the Hazardous and Solid Waste Amendments (HSWA), which allow U.S. Environmental Protection Agency (EPA) to require, as a permit condition, a facility to undertake corrective action for any release of hazardous waste or

constituents from any SWMU at a treatment, storage, and disposal (TSD) facility. On January 12, 1989, Tinker AFB submitted its Part B permit application for renewal of its operating RCRA Hazardous Waste Storage facility permit. The final RCRA HSWA permit issued on July 1, 1991, requires Tinker AFB to investigate all SWMUs and areas of concern (AOC) and to perform corrective action at those identified as posing a threat to human health or the environment. The permit specifies that an RFI be conducted for 43 identified SWMUs and two AOCs on the Base. This document has been prepared to determine whether sufficient investigations have been conducted to meet the permit requirements for FTA2.

Source Description. FTA2 is located in the south-central portion of Tinker AFB. The site is located northwest of the control tower and north of Crutcho Creek. FTA2 was established as a temporary, unlined pit and was used infrequently between 1962 and 1966. Standard operating procedures (SOP) included adding water to the pit to saturate the soil and reduce infiltration. Fuel was then brought in by tank truck, placed on top of the water, ignited, and extinguished using water and a protein-based foam. Any residues were left in the pit to evaporate and infiltrate prior to the next fire training exercise. As a result, some residual fuels may have infiltrated into the subsurface. Records for construction, operation, or destruction do not exist, so data on composition, frequency, and quantity of fuel used are not available and it is assumed that the site was simply abandoned. The site now appears as a gently sloping grassy area with no visible signs of its past use as a fire training area. During an Installation Restoration Program (IRP) Response Action performed by the U.S. Army Corps of Engineers (USACE) (December 1988), soil beneath the site was analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), and total metals. Only very low concentrations of organic compounds were detected. This investigation revealed that more information was needed concerning background concentrations of metals in the soil in this portion of Tinker AFB.

Site Investigations. A total of 22 soil samples were collected from the eight monitoring wells installed at FTA2 for chemical analysis. The analyses included VOCs, SVOCs, and metals (aluminum, arsenic, barium, beryllium, cadmium, chromium, chromium VI, copper, iron, lead, mercury, nickel, silver, and zinc).

Relatively low concentrations of organic contaminants were detected within the unsaturated soils to a depth of 23 feet. The only organic constituent detected in soil samples at a concentration greater than the method detection limit was 1,1,1-trichloroethane (TCA). Metals concentrations were within the range of background soil concentrations reported in a

study of the four-county area surrounding Tinker AFB by the U.S. Geological Survey (USGS).

Four monitoring well clusters were installed around the approximate location of FTA2: four monitoring wells in the upper saturated zone (USZ) and four monitoring wells in the lower saturated zone (LSZ).

The VOCs detected in the four USZ wells and their maximum concentrations included: trichloroethene (TCE) (8,900 micrograms per liter [µg/L]), cis-1,2-dichloroethene (1,700 µg/L), 1,2-dichloroethane (550 µg/L), chlorobenzene (240 µg/L), trans-1,2-dichloroethene (140 µg/L), 1,1,2-trichloroethane (9.0 µg/L), 1,2-dichloropropane (7.3 µg/L), 1,1-dichloroethene (6.0 µg/L), and benzene (5.7 µg/L). Volatiles detected below the quantitation limit were toluene, tetrachloroethene, and chloroform. Concentrations in well 2-62B were generally two orders of magnitude higher than in the other USZ wells. The LSZ has not been impacted by the operations at FTA2.

Concentrations of several VOCs were above the corrective action levels (CAL) proposed in Title 40 Code of Federal Regulations (CFR) Part 264.521, primarily in samples from well 2-62B. These include, in well 2-62B, the concentrations of 1,1,2-TCA and tetrachloroethene. Other compounds, for which no CAL is available, were present in well 2-62B at concentrations which exceeded MCLs, including trichloroethene, cis-1,2-dichloroethene, 1,2-dichloropropane, 1,2-dichloroethane (DCA), benzene, and trans-1,2-dichloroethene. In addition, concentrations of TCE in USZ wells 2-63B, 2-64B, and 2-65B also exceeded CALs.

The SVOCs detected in the four USZ wells and their maximum concentrations included: 1,2-dichlorobenzene (1,900 µg/L), 1,4-dichlorobenzene (290 µg/L), and 1,3-dichlorobenzene (53 µg/L). Bis(2-ethylhexyl)phthalate was detected below the quantitation limit in a sample from LSZ well 2-62A.

Concentrations of two SVOCS were above MCLs. This includes 1,2- dichlorobenzene and 1,4-dichlorobenzene in well 2-62B.

Metal concentrations within the groundwater (USZ and LSZ) are below maximum contaminant levels (MCL) for the detected metals.

Conclusions. The USZ has been impacted at FTA2; however, the LSZ has not been impacted. Principal organic contaminants in the USZ include TCE, cis-1,2-dichloroethene, and 1,2-dichlorobenzene. The highest concentrations of the contaminants were found in well 2-62B. FTA2 is apparently not the source of the contaminants, and there is apparently not any significant ongoing release from the FTA2 SWMU. The extent and the source of groundwater contamination cannot be defined by the present wells.

The source of the contaminants may be downward leakage of contaminated surface water from a nearby tributary to Crutcho Creek. The channel of the creek is deeply incised into the upper clay/silt unit. In addition, the water table is anomalously flat in this area, suggesting possible mounding due to localized recharge. This tributary drains an area occupied by industrial facilities on the east side of the airfield, and emerges from a culvert in the near vicinity of the SWMU.

Recommendations for Additional Work. Based on the results of the investigation of the FTA2, the following additional work is recommended:

- Interview Base personnel to determine if any previously unrecognized waste-generating activities have been conducted in this area
- Examine aerial photographs to determine if locations of any potential waste-generating activities are evident.
- Install temporary well points to collect samples from USZ to the north and east of well 2-62B and analyze samples for VOCs, SVOCs, total organic carbon (TOC), and total petroleum hydrocarbons (TPH).
- Install additional monitoring well(s) at location(s) selected based on results of analysis.
- Collect site-specific soil background samples to be used in addition to USGS soil data to distinguish site-related from background concentrations in a statistically significant manner during the Phase II investigation.
- Further define the extent of contamination by determining the location, number, and depth of soil borings/monitoring wells during the development of a Phase II RFI work plan.
- Submit Phase II work plan to EPA for approval before conducting any field activities.

1.0 Introduction

The U.S. Department of the Air Force is conducting an Installation Restoration Program (IRP) at Tinker Air Force Base (AFB), Oklahoma (Figure 1-1). This program intends to identify sites through initial assessment, characterize each solid waste management unit (SWMU) or area of concern (AOC), study and select cleanup methods, if required, and implement a cleanup. In support of this effort, a Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) was conducted at Fire Training Area 2 (FTA2), SWMU-8, at Tinker AFB, Oklahoma (Figure 1-2). This Phase I investigation focuses its efforts on determining if there have been any releases of contamination to the soil and groundwater resulting from previously placing fuel within water-filled pits for fire training purposes.

Adequate information was gathered in this Phase I RFI to support a Phase II investigation, a Corrective Measures Study (CMS), or interim measures, if necessary. A phased approach has been taken by Tinker AFB for the FTA2 site investigation. This phasing of the RFI is in accordance with the U.S. Environmental Protection Agency (EPA) RFI guidance documents and is also the most practical approach for this site where little or no information is available on past practices.

Outlined below are the minimum tasks generally required by the EPA for a RCRA investigation of a SWMU or AOC:

- Task I - Description of Current Conditions
- Task II - Work Plan
- Task III - Facility Investigation
- Task IV - Investigative Analysis
- Task V - Report.

The Task I requirements for FTA2 have been addressed in the *Description of Current Conditions* (Tinker, 1992), which outlines the geology, hydrogeology, and current conditions of the site. Task II requirements have been addressed in the *Final RFI Work Plan* (CDM Federal Programs Corporation [CDM], 1992), and the Final RFI Work Plan - Amendments (IT Corporation [IT], 1993). The *Final RFI Work Plan* and the Final RFI Work Plan - Amendments include a Data Management Plan, Project Management Plan, Data Collection Quality Assurance Plan, Health and Safety Plan, and amendments as necessary to perform a

STARTING DATE: 03/17/94	DATE LAST REV.:	DRAFT. CHCK. BY:G. PACHECO	INITIATOR: C. WALLACE
DRAWN BY:P.O. TERRY	DRAWN BY:	ENGR. CHCK. BY: C. WALLACE	PROJ. MGR.J. TAYLOR

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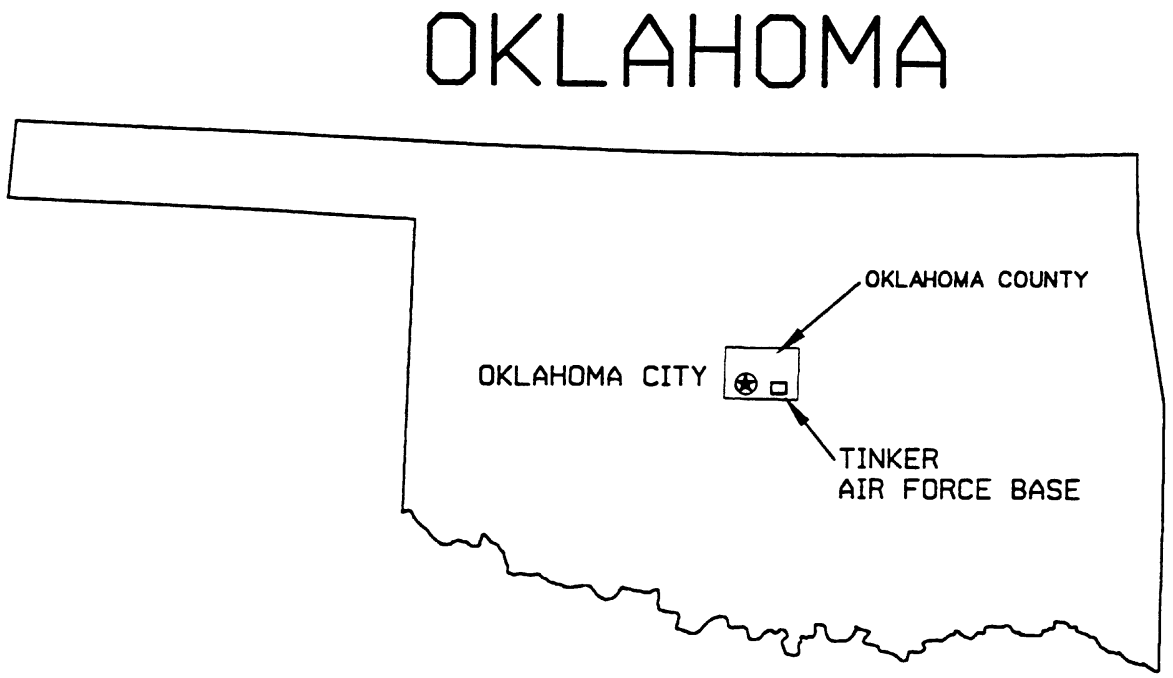

FIGURE 1-1
TINKER AIR FORCE BASE
OKLAHOMA
STATE INDEX MAP

PREPARED FOR
TINKER AFB
OKLAHOMA

3/23/94 POT
FILENAME: G:\TINKER\40983202.075

FIGURE 1-2
FTA 2
SITE LOCATION MAP
TINKER AFB
OKLAHOMA
INTERSTATE 40
DOUGLAS BLVD.
74TH ST.
SOONER RD.
FTA 2
(SWMU-8)
N
SCALE
0
3000
6000 FEET
STARTING DATE: 3/30/94
DATE LAST REV.:
DRAWN BY: L. STOUT
DRAWN BY:
DRAFT. CHCK. BY: G. PACHECO
ENGR. CHCK. BY:
INITIATOR: C. WALLACE
PROJ. MGR.: J. TAYLOR
DWG. NO.:
PROJ. NO.:
FILENAME: G:\TINKER\40983202.118

Phase I RFI. Tasks III and IV requirements, which characterize the site, determine the presence of contamination, and identify actual and potential receptors have been addressed in this report. This report also satisfies the requirements of Task V.

1.1 Purpose

This report has been prepared in response to the U.S. Department of the Air Force, Tinker AFB, Oklahoma request for a Phase I RFI and report for FTA2.

The purpose of this report is to document and present the findings of the RFI conducted at FTA2. The primary objective of the RFI was to determine if contaminant releases to the environment have occurred at the site and to determine if a more comprehensive Phase II RFI or a CMS is required. This RFI Report presents the following information:

- Site characterization (Environmental Setting)
- Source term definition (Source Characterization), if any
- Degree of contamination (Contamination Characterization)
- Identification of actual or potential receptors
- Analytical results and analysis (Data Analysis)
- Identification of groundwater protection standards and action levels for the protection of human health and the environment (Protection Standards)
- Conclusions and recommendations for future work.

This document will also describe the procedures and methods of field sampling and cite any previous investigations conducted at the site.

1.2 Scope of Investigation

The soils and the groundwater below and around FTA2 were investigated. Soil samples were taken at various depths below the site to determine the presence of subsurface soil contamination. Groundwater samples were taken from shallow and deep monitoring wells both up- and downgradient from FTA2 to determine if contamination was present in either the upper or lower aquifers.

2.0 Background

2.1 Tinker AFB Facility Description and History

Tinker AFB is located in central Oklahoma, in the southeast portion of the Oklahoma City metropolitan area, in Oklahoma County (Figure 1-1) with its approximate geographic center located at 35° 25' latitude and 97° 24' longitude (U.S. Geological Survey [USGS], 1978). The Base is bounded by Sooner Road to the west, Douglas Boulevard to the east, Interstate 40 to the north, and Southeast 74th Street to the south. An additional area east of the main Base is used by the Engineering Installation Division (EID) and is known as Area D. The Base encompasses approximately 5,000 acres.

Tinker AFB was originally known as the Midwest Air Depot and began operations in July 1941. The site was activated March 1942 and during World War II the depot was responsible for reconditioning, modifying, and modernizing aircraft, vehicles, and equipment. Tinker AFB now serves as a worldwide repair depot for a variety of aircraft, weapons, and engines. These activities require the use of hazardous materials and result in the generation of hazardous wastes. These wastes have included spent organic solvents, waste oils, waste paint strippers and sludges, electroplating wastewaters and sludges, alkaline cleaners, acids, Freon™, jet fuels, and radium paints. Wastes that are currently generated are managed at two permitted hazardous waste storage facilities. Prior to enactment of RCRA, however, industrial wastes were discharged into unlined landfills and waste pits, streams, sewers, and ponds. Releases from these areas as well as from underground tanks have occurred. As a result, there are numerous sites of soil, groundwater, and surface water contamination on Base.

2.2 Site Description and History

FTA2 is located in the south-central portion of Tinker AFB (Figure 1-2). The site is located northwest of the control tower and north of Crutcho Creek. FTA2 was established as a temporary, unlined pit and was used infrequently between 1962 and 1966. Standard operating procedures (SOP) included adding water to the pit to saturate the soil and reduce infiltration. Fuel was then brought in by tank truck, placed on top of the water, ignited, and extinguished using water and a protein-based foam. Any residues were left in the pit to evaporate and infiltrate prior to the next fire training exercise. Records for construction, operation, or destruction do not exist, so data on composition, frequency, and quantity of fuel used is not available and it is assumed that the site was simply abandoned. The site now appears as a gently sloping grassy area with no visible signs of its past use as a fire training area. During

an IRP Response Action performed by the U.S. Army Corps of Engineers (USACE) (December 1988), soil beneath the site was analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), and total metals. This investigation revealed that more information was needed concerning background concentrations of metals in the soil in this portion of Tinker AFB.

2.3 Regulatory History and Status

In 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to address the cleanup of hazardous waste disposal sites across the country. CERCLA gave the president authority to require responsible parties to remediate the sites or to undertake response actions through use of a fund (the Superfund). The president, through Executive Order 12580, delegated the EPA with the responsibility to investigate and remediate private party hazardous waste disposal sites that created a threat to human health or the environment. The president delegated responsibility for investigation and cleanup of federal facility disposal sites to the various federal agency heads. The Defense Environmental Restoration Program (DERP) was formally established by Congress in Title 10 U.S. Code (USC) 2701-2707 and 2810. DERP provides centralized management for the cleanup of U.S. Department of Defense (DOD) hazardous waste sites consistent with the provisions of CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] 300), and Executive Order 12580. To support the goals of the DERP, the IRP was developed to identify, investigate, and clean up contamination at installations.

Under the Air Force IRP, Tinker AFB began a Phase I study similar to a preliminary assessment/site investigation (PA/SI) in 1981 (Engineering Science [ES], 1982). This study helped locate 14 sites that needed further investigation. Phase II studies were performed in 1983 (Radian Corporation [Radian], 1985a).

In 1986, Congress amended CERCLA through the SARA, which waived sovereign immunity for federal facilities. SARA gave EPA authority to oversee the cleanup of federal facilities and to have the final authority for selecting the remedial action at federal facilities placed on the National Priorities List (NPL) if the EPA and the relevant federal agency cannot concur in the selection. Congress also codified the DERP (SARA Section 211), setting up a fund for the DOD to remediate its sites because the Superfund is not available for the cleanup of

federal facilities. DERP specifies the type of cleanup responses that the fund can be used to address.

In response to SARA, the DOD realigned its IRP to follow the investigation and cleanup stages of the EPA:

- PA/SI
- Remedial investigation/feasibility study (RI/FS)
- Record of Decision (ROD) for selection of a remedial action
- Remedial design/remedial action.

In 1984, Congress amended the RCRA with the Hazardous and Solid Waste Amendments (HSWA) which allow the EPA to require, as a permit condition, a facility to undertake corrective action for any release of hazardous waste or constituents from any SWMU at a treatment, storage, and disposal (TSD) facility. On January 12, 1989 Tinker AFB submitted its Part B permit application for renewal of its operating RCRA hazardous waste storage facility permit.

EPA, in the Hazardous Waste Management Permit for Tinker AFB dated July 1, 1991, identified 43 SWMUs and two AOCs on Tinker AFB that need to be addressed. This permit requires Tinker AFB to investigate all SWMUs and AOCs and to perform corrective action at those identified as posing a threat to human health or the environment. This RFI Report has been prepared to determine whether sufficient investigations have been conducted to meet the permit requirements for FTA2 and to document all findings.

2.4 Summary of Previous Investigations

An IRP Response Action was performed by the USACE (December 1988) in which soil beneath the site was analyzed for VOCs, SVOCs, and total metals. Three soil borings were drilled and soil samples were collected from the following depths: 0 to 1 foot, 1 to 4 feet, and 4 to 7 feet (total depth due to auger refusal). VOCs included the detection of methylene chloride in 8 of 11 samples and acetone in 3 of 11 samples. The only SVOC detected in 4 of 11 samples was bis(2-ethylhexyl)phthalate. Six metals including barium, cadmium, mercury, nickel, lead, and selenium were detected in samples at or above background level averages established by analyzing a total of 16 samples from four Base perimeter borings.

The investigation performed at FTA2 identified that no contamination exists at the site, but revealed that more information was needed concerning background concentrations of metals in the soil in this portion of Tinker AFB.

3.0 Environmental Setting

3.1 Topography and Drainage

3.1.1 Topography

Regional/Tinker AFB. The topography of Oklahoma City and surrounding area varies from generally level to gently rolling in appearance. Local relief is primarily the result of dissection by erosional activity or stream channel development. At Oklahoma City, surface elevations are typically in the range of 1,070 to 1,400 feet mean sea level (msl). At Tinker AFB ground surface elevations vary from 1,190 feet msl near the northwest corner where Crutcho Creek intersects the Base boundary to approximately 1,320 feet msl at Area D (EID), located on 59th Street, east of the main installation.

Site. In the vicinity of FTA2 the topography slopes gently to the southwest, away from the air field runways and toward Crutcho Creek (Figure 3-1). The sloping topography is modified by the incised channel of a southwest-flowing tributary to Crutcho Creek. The channel of this tributary is approximately 5 to 10 feet below the grade of the surrounding terrain.

3.1.2 Drainage

Regional/Tinker AFB. Drainage of Tinker AFB land areas is accomplished by overland flow of runoff to diversion structures and thence to area surface streams, which flow intermittently. The northeast portion of the Base is drained primarily by tributaries of Soldier Creek. The north and west sections of the Base including the main instrument runway, drain to Crutcho Creek, a tributary of the North Canadian River. Two small unnamed intermittent streams crossing installation boundaries south of the main instrument runway generally do not receive significant quantities of Base runoff due to site grading designed to preclude such drainage. These streams, when flowing, extend to Stanley Draper Lake, approximately one-half mile south of the Base.

Site. Surface waters in the area of FTA2 drain by overland flow to the southwest toward Crutcho Creek, which flows to the northwest. In a part of the area around SWMU-8, overland flow is toward a southwest-draining tributary to Crutcho Creek (Figrue 3-1). The

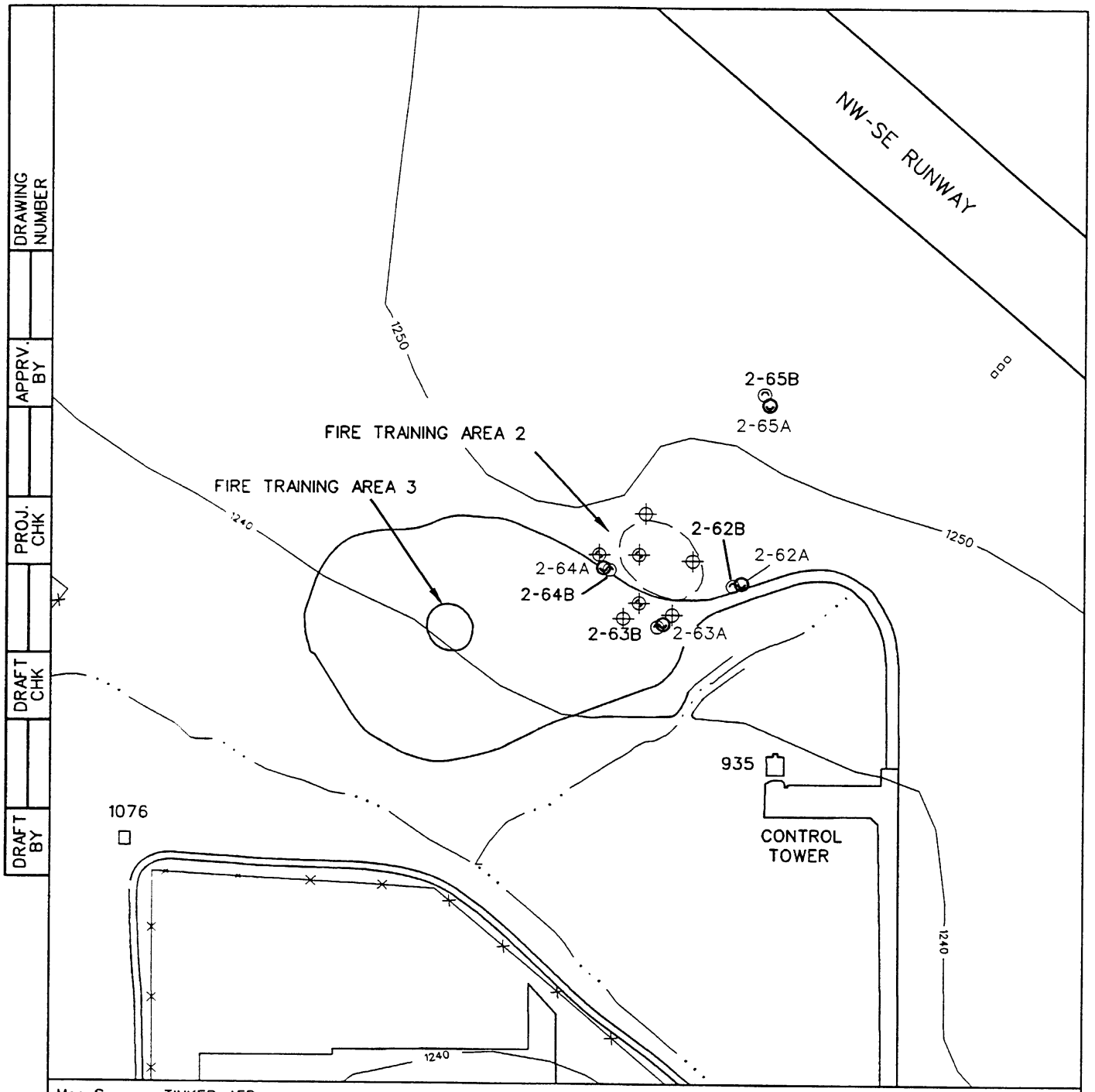

FIGURE 3-1
TOPOGRAPHIC MAP OF FIRE TRAINING AREA 2 WITH LOCATIONS OF MONITORING WELLS

PREPARED FOR

TINKER AFB
OKLAHOMA

southwest-draining tributary emerges from a culvert located approximately 200 feet east of the SWMU. The tributary drains an area on the east side of the airfield occupied by industrial facilities.

3.2 Geology

3.2.1 Regional/Tinker AFB Geology

Tinker AFB is located within the Central Redbed Plain Section of the Central Lowland Physiographic Province, which is tectonically stable. No major fault or fracture zones have been mapped near Tinker AFB. The major lithologic units in the area of the Base are relatively flat-lying and have a regional westward dip of about 0.0076 foot per foot (ft/ft) (Bingham and Moore, 1975).

Geologic formations that underlie Tinker AFB include, from oldest to youngest, the Wellington Formation, Garber Sandstone, and the Hennessey Group; all are Permian in age.

All geologic units immediately underlying Tinker AFB are sedimentary in origin. The Garber Sandstone and Wellington Formation are commonly referred to as the Garber-Wellington Formation due to strong lithologic similarities. These formations are characterized by fine-grained, calcareously-cemented sandstones interbedded with shale. The Hennessey Group consists of the Fairmont Shale and the Kingman Siltstone. It overlies the Garber-Wellington Formation along the eastern portion of Cleveland and Oklahoma counties. Quaternary alluvium is found in many undisturbed streambeds and channels located within the area.

Stratigraphy. Tinker AFB lies atop a sedimentary rock column composed of strata that ranges in age from Cambrian to Permian above a Precambrian igneous basement. Quaternary alluvium and terrace deposits can be found overlying bedrock in and near present-day stream valleys. At Tinker AFB, Quaternary deposits consist of unconsolidated weathered bedrock, fill material, windblown sand, and interfingering lenses of sand, silt, clay, and gravel of fluvial origin. The terrace deposits are exposed where stream valleys have downcut through older strata and have left them topographically above present-day deposits. Alluvial sediments range in thickness from less than a foot to nearly 20 feet.

Subsurface (bedrock) geologic units that outcrop at Tinker AFB and are important to understanding groundwater and contaminant concerns at the Base consist of, in descending order: the Hennessey Group, the Garber Sandstone, and the Wellington Formation (Table 3-1). These bedrock units were deposited during the Permian age (230 to 280 million years ago) and are typical of redbed deposits formed during that period. The units are composed of a conformable sequence of sandstones, siltstones, and shales. Individual beds are lenticular and vary in thickness over short horizontal distances. Because lithologies are similar and because of a lack of fossils or key beds, the Garber Sandstone and the Wellington Formation are difficult to distinguish and are often informally lumped together as the Garber-Wellington Formation. Together, they are about 900 feet thick at Tinker AFB. The interconnected, lenticular nature of sandstones within the sequence forms complex pathways for groundwater movement.

The surficial geology of the north section of the Base is dominated by the Garber Sandstone, which outcrops across a broad area of Oklahoma County. Generally, the Garber outcrop is covered by a thin veneer of soil and/or alluvium up to 20 feet thick. To the south, the Garber Sandstone is overlain by outcropping strata of the Hennessey Group including the Kingman Siltstone and the Fairmont Shale (Bingham and Moore, 1975). Drilling information obtained as a result of geotechnical investigations and monitoring well installation confirms the presence of these units.

Depositional Environment. The Permian-age strata presently exposed at the surface in central Oklahoma were deposited along a low-lying north-south oriented coastline. Land features included meandering to braided sediment-loaded streams that flowed generally westward from highlands to the east (ancestral Ozarks). Sand dunes were common as were cut-off stream segments that rapidly evaporated. The climate was arid and vegetation sparse. Offshore the sea was shallow and deepened very gradually to the west. The shoreline's position varied over a wide range. Isolated evaporitic basins frequently formed as the shoreline shifted.

Across Oklahoma, this depositional environment resulted in an interfingering collage of fluviatile and windblown sands, clays, shallow marine shales, and evaporite deposits. The overloaded streams and evaporitic basins acted as sumps for heavy metals such as barium, chromium, iron, and lead. Oxidation of iron in the arid climate resulted in the reddish color

Table 3-1

Major Geologic Units in the Vicinity of Tinker AFB
(Modified from Wood and Burton, 1968)
Tinker AFB

System	Series	Stratigraphic Unit	Thickness (feet)	Description and Distribution	Water-Bearing Properties
QUATERNARY	PLEISTOCENE AND RECENT	Alluvium	0-70	Unconsolidated and interfingering lenses of sand, silt, clay, and gravel in the flood plains and channels of stream	Moderately permeable. Yields small to moderate quantities of water in valleys of larger streams. Water is very hard, but suitable for most uses, unless contaminated by industrial wastes or oil field brines.
		Terrace deposits	0-100	Unconsolidated and interfingering lenses of sand, silt, gravel, and clay that occur at one or more levels above the flood plains of the principal streams.	Moderately permeable. Locally above the water table and not saturated. Where deposits have sufficient saturated thickness, they are capable of yielding moderate quantities of water to wells. Water is moderately hard to very hard, but less mineralized than water in other aquifers. Suitable for most uses unless contaminated by oil field brines.

Table 3-1

(Page 2 of 2)

System	Series	Stratigraphic Unit	Thickness (feet)	Description and Distribution	Water-Bearing Properties
PERMIAN	LOWER PERMIAN	Hennessey Group (includes Kingman Siltstone and Fairmont Shale)	700	Deep-red clay shale containing thin beds of red sandstone and white or greenish bands of sandy or limey shale. Forms relatively flat to gently rolling grass-covered prairie.	Poorly permeable. Yields meager quantities or very hard, moderately to highly mineralized water to shallow domestic and stock wells. In places water contains large amounts of sulfate.
		Garber Sandstone	500±	Deep-red clay to reddish-orange, massive and cross-bedded fine-grained sandstone interbedded and interfingered with red shale and siltstone	Poorly to moderately permeable. Important source of groundwater in Cleveland and Oklahoma counties. Yields small to moderate quantities of water to deep wells; heavily pumped for industrial and municipal uses in the Norman and Midwest City areas. Water from shallow wells hard to very hard; water from deep wells moderately hard to soft. Lower part contains water too salty for domestic and most industrial uses.
		Wellington Formation	500±	Deep-red to reddish-orange massive and cross-bedded fine-grained sandstone interbedded with red, purple, maroon, and gray shale. Base of formation not exposed in the area.	

of many of the sediments. Erosion and chemical breakdown of granitic rocks from the highlands result in extensive clay deposits. Evaporite minerals such as anhydrite ($CaSO_4$), barite ($BaSO_4$), and gypsum ($CaSO_4 \cdot 2H_2O$) are common.

Around Tinker AFB, the Hennessey Group represents deposition in a tidal flat environment cut by shallow, narrow channels. The Hennessey Group comprises predominantly red shales, which contain thin beds of sandstone (less than 10 feet thick) and siltstone. In outcrops, "mudball" conglomerates, burrow surfaces, and desiccation cracks are recognized. These units outcrop over roughly the southern half of the Base, thickening to approximately 70 feet in the southwest from their erosional edge (zero thickness) across the central part of Tinker AFB.

In contrast, the Garber Sandstone and Wellington Formation around Tinker AFB consist of an irregularly interbedded system of lenticular sandstones, siltstones, and shales deposited either in meandering streams in the upper reaches of a delta or in a braided stream environment. Outcrop units north of Tinker AFB exhibit many small to medium channels with cut and fill geometries consistent with a stream setting. Sandstones are typically cross-bedded. Individual beds range in thickness from a few inches to about 50 feet and appear massive, but thicker units are often formed from a series of "stacked" thinner beds. Geophysical and lithologic well logs indicate that from 65 to 75 percent of the Garber Sandstone and the Wellington Formation are composed of sandstone at Tinker AFB. The percentage of sandstone in the section decreases to the north, south, and west of the Base. These sandstones are typically fine to very fine grained, friable, and poorly cemented. However, where sandstone is cemented by red muds or by secondary carbonate or iron cements, local thin "hard" intervals exist along disconformities at the base of sandstone beds. Shales are described as ranging from clayey to sandy, are generally discontinuous, and range in thickness from a few inches to about 40 feet.

Stratigraphic Correlation. Correlation of geologic units is difficult due to the discontinuous nature of the sandstone and shale beds. However, cross sections demonstrate that two stratigraphic intervals can be correlated over most of the Base in the conceptual model. The location of these cross sections is shown in Figure 3-2. These intervals are represented on geologic cross-sections A-A' and B-B' in Figures 3-3 and 3-4. Section A-A' is roughly a dip section and B-B' is approximately a strike section. The first correlatable interval is marked by the base of the Hennessey Group and the first sandstone at the top of the Garber Sandstone. This interval is mappable over the southern half of Tinker AFB. The second interval

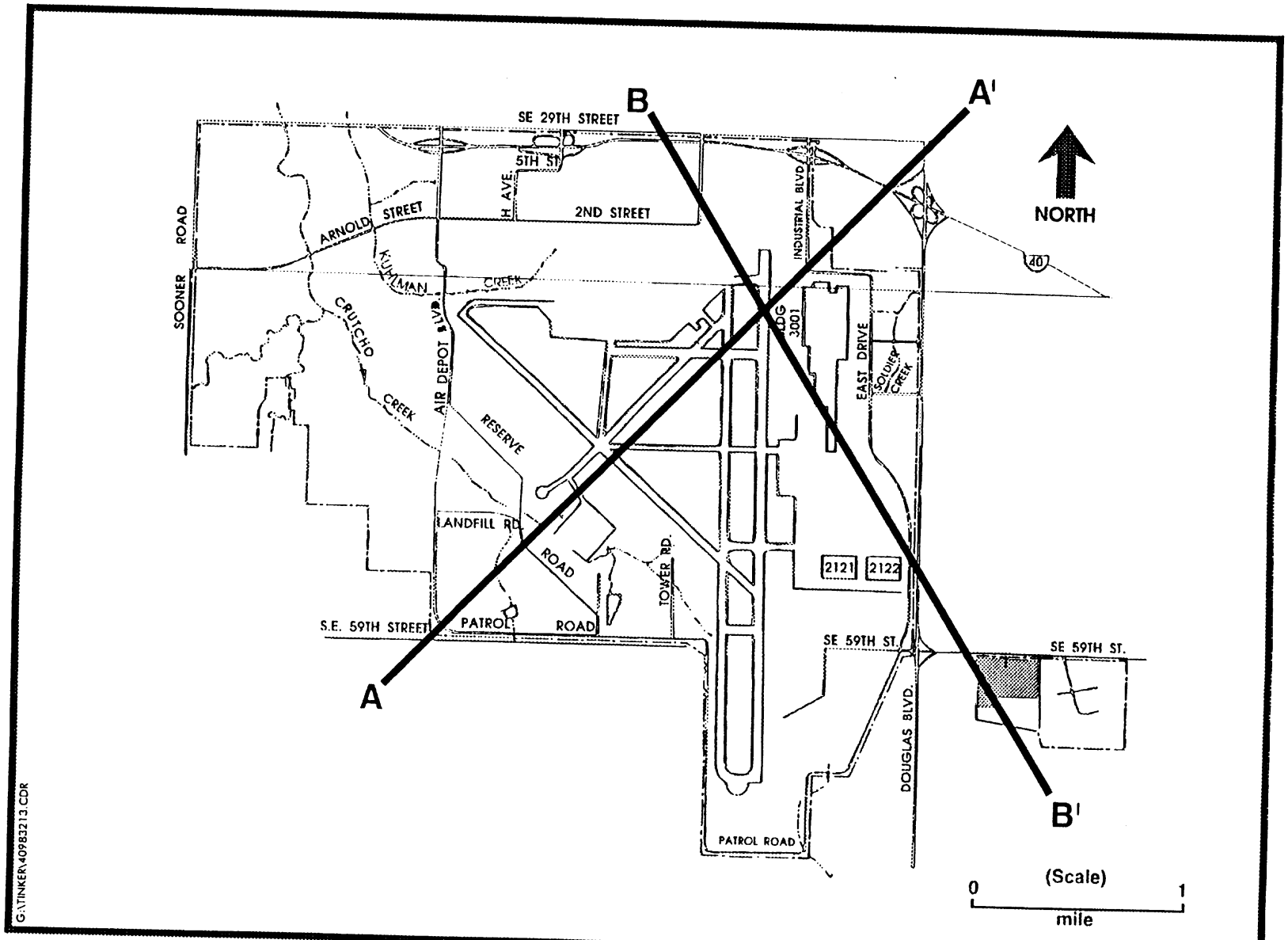

FIGURE 3-2 TINKER AFB GEOLOGIC CROSS SECTION LOCATION MAP

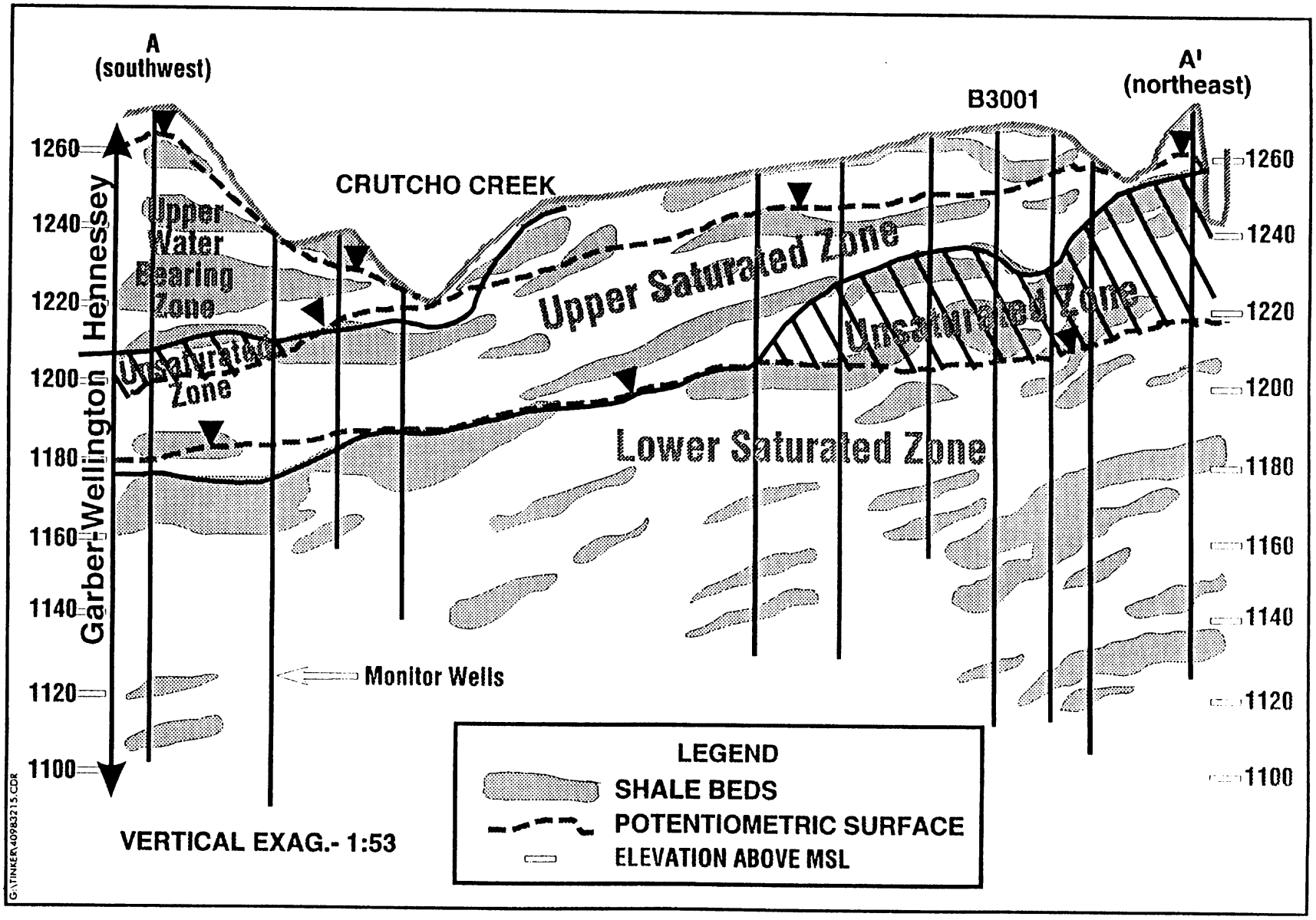

FIGURE 3-3 TINKER AFB GEOLOGIC CROSS SECTION A-A'

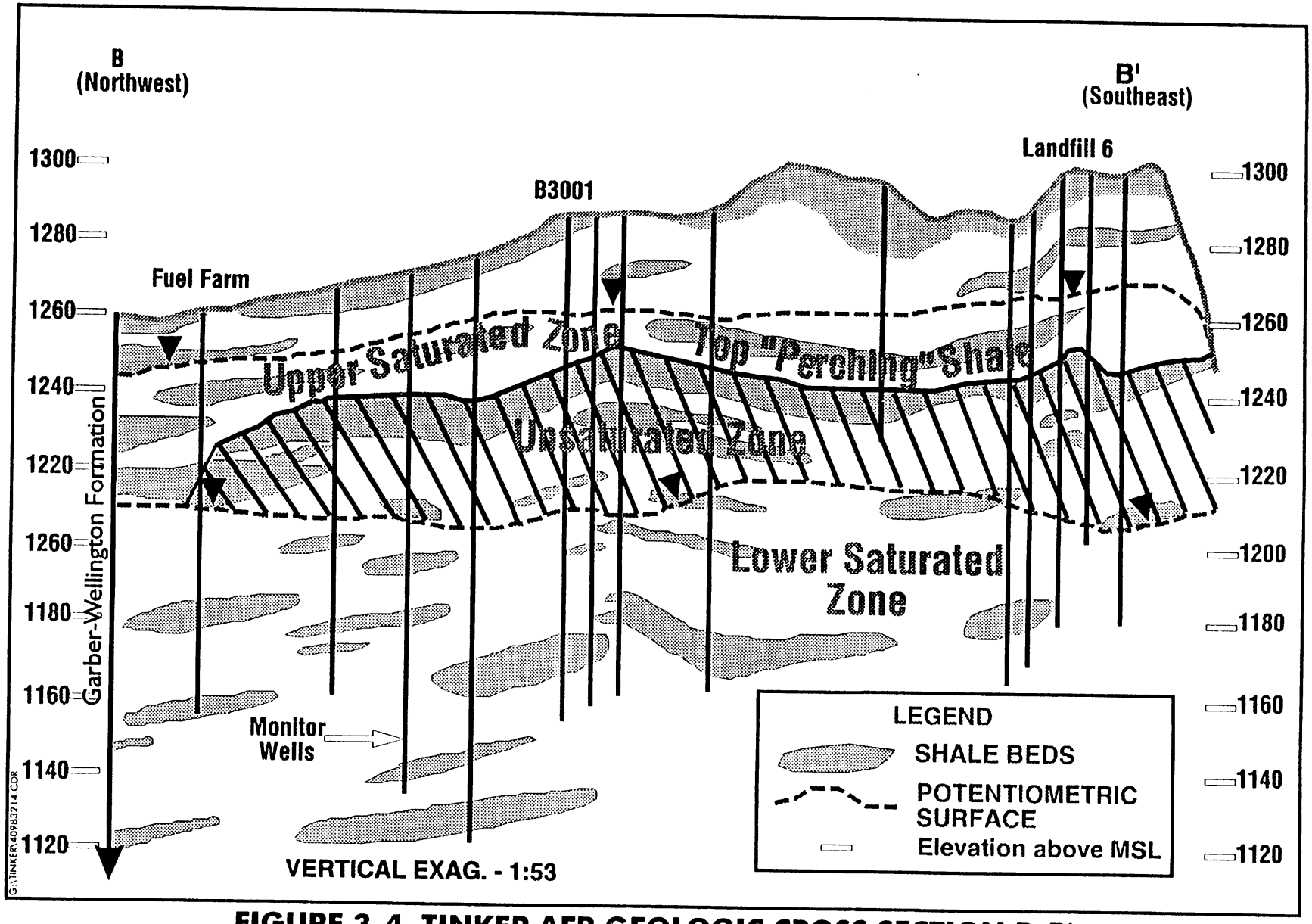

FIGURE 3-4 TINKER AFB GEOLOGIC CROSS SECTION B-B'

consists of a shale zone within the Garber Sandstone, which, in places, comprises a single shale layer and in other places multiple shale layers. This interval is more continuous than other shale intervals and in cross sections appears mappable over a large part of the Base. It is extrapolated under the central portion of Tinker AFB where little well control exists.

Structure. Tinker AFB lies within a tectonically stable area; no major near-surface faults or fracture zones have been mapped near the Base. Most of the consolidated rock units of the Oklahoma City area dip westward at a low angle. A regional dip of 0.0057 to 0.0076 ft/ft in a generally westward direction is supported by stratigraphic correlation on geologic cross sections at Tinker AFB. Bedrock units strike slightly west of north.

Although Tinker AFB lies in a tectonically stable area, regional dips are interrupted by buried structural features located west of the Base. A published east to west generalized geologic cross section, which includes Tinker AFB supports the existence of a northwest trending structural trough or syncline located near the western margin of the Base. The syncline is mapped adjacent to and just east of a faulted anticlinal structure located beneath the Oklahoma City Oil Field. The fault does not appear to offset Permian-age strata. There are indications that the syncline may act as a "sink" for some regional groundwater (southwest flow) at Tinker AFB before it continues to more distant discharge points.

3.2.2 Site Geology

Soil borings were completed at four locations at FTA2. The borings extended to depths between 67 and 79 feet. Geophysical logs, natural gamma, self potential (SP), resistivity, and caliper logs were run in the borings. Monitoring wells were also installed at each of the soil boring locations. Figure 4-1 shows the soil boring locations. Figure 5-2 is a geologic cross section illustrating the subsurface stratigraphy at FTA2. FTA2 is located within the outcrop area of the Hennessey Group. The soil borings encountered the underlying Garber-Wellington Formation. Site geology is discussed further in Chapter 5.0.

3.3 Hydrology

3.3.1 Regional/Tinker AFB Hydrology

The most important source of potable groundwater in the Oklahoma City metropolitan area is the Central Oklahoma aquifer system. This aquifer extends under much of central Oklahoma and includes water in the Garber Sandstone and Wellington Formation, the overlying alluvium and terrace deposits, and the underlying Chase, Council Grove, and Admire Groups. The

Garber Sandstone and the Wellington Formation portion of the Central Oklahoma aquifer system is commonly referred to as the "Garber-Wellington aquifer" and is considered to be a single aquifer because these units were deposited under similar conditions and because many of the best producing wells are completed in this zone. On a regional scale, the aquifer is confined above by the less permeable Hennessey Group and below by the Late Pennsylvanian Vanoss Group.

Tinker AFB lies within the limits of the Garber-Wellington groundwater basin. Presently, Tinker AFB derives most of its water supply from this aquifer and supplements the supply by purchasing water from the Oklahoma City Water Department. The nearby communities of Midwest City and Del City derive water supplies from both surface sources and wells tapping the aquifer. Industrial operations, individual homes, farm irrigation, and small communities not served by a municipal distribution system also depend on the Garber-Wellington aquifer. Communities presently depending upon surface supplies such as Oklahoma City also maintain a well system drilled into the Garber-Wellington aquifer as a standby source of water in the event of drought.

Recharge of the Garber-Wellington aquifer is accomplished principally by percolation of surface waters crossing the area of outcrop and by rainfall infiltration in this same area. Because most of Tinker AFB is located in an aquifer outcrop area, the Base is considered to be situated in a recharge zone.

According to Wood and Burton (1968) and Wickersham (1979), the quality of groundwater derived from the Garber-Wellington aquifer is generally good, although wide variations in the concentrations of some constituents are known to occur. Wells drilled to excessive depths may encounter a saline zone, generally greater than 900 feet below ground surface. Wells drilled to such depths or those accidentally encountering the saline zone are either grouted over the lowest screens or may be abandoned.

Tinker AFB presently obtains its water supplies from a distribution system comprised of 29 water wells constructed along the east and west Base boundaries and by purchase from the Oklahoma City Water Department. All Base wells are finished into the Garber-Wellington aquifer. Base wells range from 700 to 900 feet in finished depth, with yields ranging from 205 to 250 gallons per minute. The wells incorporate multiple screens, deriving water supplies from sand zones with a combined thickness from 103 to 184 feet (Wickersham, 1979).

Conceptual Hydrologic Model. The hydrologic conceptual model of Tinker AFB involves a comprehensive review of available data, including those from direct measurement sources (borings, water level measurements, pump/slug tests, stream studies) as well as indirect sources (aerial photographs, topographic maps, published reports). The hydrologic system at Tinker AFB is complex, but the model provides both an approximation of depth to water and an estimated direction of groundwater movement and is therefore useful as a basis for designing field investigations. As information is derived from investigations, the model is continually updated and refined.

Groundwater. As a result of ongoing environmental investigations and the approximately 450 groundwater monitoring wells installed on the Base during various investigations, a better understanding of the specific hydrological framework has emerged. The current conceptual model developed by Tinker AFB (Tinker, 1993), based on the increased understanding of the hydrological framework, has been revised from a previous model adopted by the U.S. Army Corps of Engineers (USACE). Previous studies reported that groundwater was divided into four water bearing zones: the perched aquifer, the top of regional aquifer, the regional aquifer, and the producing zone. In the current model, two principal water table aquifer zones and a third less extensive zone have been identified. The third is limited to the southwest quadrant. The third aquifer zone consisted of saturated siltstone and thin sandstone beds in the Hennessey Shale and equates to the upper water bearing zone (UWBZ) described by the USACE at Landfills 1 through 4 (SWMUs-3 through -6). In addition, numerous shallow, thin saturated beds of siltstone and sandstone exist throughout the Base. These beds are of limited areal extent and are often perched.

In the current conceptual hydrologic model by Tinker AFB, an upper saturated zone (USZ) and a lower saturated zone (LSZ) are recognized in the interval from ground surface to approximately 200 feet. Below this depth is found the producing zone from which the Base draws much of its water supply. Figure 3-5 shows the potentiometric surface for the USZ and Figure 3-6 shows the potentiometric surface for the LSZ. The USZ exists under water table (unconfined) conditions, but may be partially confined locally. Conditions in the LSZ are difficult to determine due to screen placement and overlie long sand packs below the screen interval.

The USZ is found at a depth of 5 to 70 feet below ground surface and has a saturated thickness ranging from less than 1 foot at its eastern boundary to more than 20 feet in places west of Building 3001. The USZ is erosionally truncated by Soldier Creek along the

FIGURE 3-5
TINKER AIR FORCE BASE
UPPER SATURATED ZONE
POTENTIOMETRIC SURFACE

STARTING DATE: 01APRIL94	DATE LAST REV.:	DRAFT. CHCK. BY:	ENGR. CHCK. BY:	PROJ. MGR.: J.TAYLOR
DRAWN BY: L. STOUT	DRAWN BY:	INITIATOR: C.WALLACE		PROJ. NO.: 409832
				DWG. NO.: 409832092C

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DRAWN BY: C.E.TUMLIN	DRAWN BY:	ENGR. CHCK. BY:	INITIATOR: C.WALLACE	PROJ. NO.:409832
STARTING DATE: 23MAR94	DATE LAST REV.:	DRAFT. CHCK. BY:	PROJ. MGR.: J.TAYLOR	DWG. NO.:40983209C

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northeastern margin of Tinker AFB. This aquifer zone is considered to be a perched aquifer over the eastern one-third of Tinker AFB, where it is separated from the LSZ by an underlying confining shale layer and a vadose zone. The confining interval extends across the entire Base, but the vadose zone exists over the eastern one-third of this area. The available hydrologic data indicate that the vadose zone does not exist west of a north-south line located approximately 500 to 1,000 feet west of the main runway; consequently, the USZ is not perched west of this line. However, based on potentiometric head data from wells screened above and below the confining shale layer, the USZ remains a discrete aquifer zone distinct from the LSZ even over the western part of the Base. In areas where several shales interfinger to form the lower confining interval rather than a single shale bed, "gaps" may occur. In general, these gaps are not holes in the shale but are places where multiple shales exist that are separated by slightly more permeable strata. Hydrologic data from monitoring wells indicate that these zones allow increased downward flow of groundwater above what normally leaks through the confining layer.

The LSZ is hydraulically interconnected and can be considered one aquifer zone down to approximately 200 feet. This area includes what was referred to by the USACE as the top of regional and regional zones. Hydrologic data from wells screened at different depths at the same location within this zone, however, provide evidence that locally a significant vertical (downward) component of groundwater flow exists in conjunction with lateral flow. The magnitude of the vertical component is highly variable over the Base. Preliminary evidence suggests that the LSZ is hydraulically discrete from the producing zone. Due to variations in topography the top of the lower zone is found at depths ranging from 50 to 100 feet below ground surface under the eastern parts of the Base and as shallow as 30 feet to the west. Differences in potentiometric head values found at successive depths are due to a vertical (downward) component of groundwater flow in addition to lateral flow and the presence or absence of shale layers that locally confine the aquifer system. The LSZ extends east of the Base (east of Soldier Creek) beyond the limits of the USZ where it becomes the first groundwater zone encountered in off-Base wells. Because of the regional dip of bedding, groundwater gradient, and topography, the LSZ just east of the Base is generally encountered at depths of less than 20 feet.

Across the central portion of Tinker AFB, the unsaturated zone separating the USZ and LSZ disappears where the intervening shale layer dips below the surface of the LSZ. The disappearance of the unsaturated zone is supported by data from recently completed wells just west of the north-south runway and near Base Operations and by data from wells in the southwest

portion of the Base. Measured water levels in two of the new wells show that the LSZ is confined at these locations by the shale separating the USZ and LSZ. No unsaturated interval is present.

To the southwest, measured water levels from wells screened in the Garber Sandstone at Landfills 2 and 4, SWMUs-4 and -6, which correspond in the conceptual model to the USZ under the east part of the Base, show that the USZ remains unconfined or is partially confined. This zone is essentially the first water level encountered in the Garber Sandstone on the Base. Potentiometric data from wells in the southwest screened in deeper intervals, that correspond roughly to the LSZ to the east indicate that the LSZ is confined in this area. Data from wells screened at various intervals to a depth of about 90 feet in this area also show that no vadose (unsaturated) zone separates the USZ from the rest of the aquifer. The upper and lower zones cannot be distinguished in this area except by correlating geologic units across Base.

Farther to the southwest of the landfills, near the edge of the Base, another unsaturated zone is found separating groundwater in the Hennessey Group from the Garber-Wellington aquifer. This unsaturated zone is not continuous with that encountered on the east side of the Base. The groundwater in the overlying Hennessey water bearing zone represents the third groundwater zone of more limited areal extent mentioned previously. This shallow unconfined aquifer system is located on a topographic high (groundwater divide) in the strata of the Hennessey Group. Radial flow of groundwater off the divide toward nearby tributaries of Crutcho Creek is suggested from limited water level measurements. Additional shallow perched saturated zones of limited areal extent are thought to exist in other sandstone and siltstone beds within the Hennessey water bearing zone. Along the western margin of Tinker AFB west of Crutcho Creek, the shallow groundwater in the Hennessey water bearing zone and probably groundwater in the most shallow saturated zones in the Garber-Wellington aquifer appears to flow toward stream tributaries, and therefore, does not follow regional flow patterns to the west/southwest.

The aquifer zones in the conceptual model are hydraulically connected, although sometimes only to a very local extent, either directly as in the west part of the Base or indirectly through leakage and/or recharge patterns related to local streams. Because Tinker AFB is located in a recharge zone for the Central Oklahoma aquifer both horizontal and vertical (downward) components of groundwater flow exist. Measured potentiometric levels from well clusters with screens and filter packs placed at varying depths within the LSZ show that hydraulic

heads decrease with depth and that the magnitude of the vertical component of flow varies with location. This finding is particularly important to recognize where data from these wells are being used to generate potentiometric contour maps.

Although the variability in the geology and the recharge system at Tinker AFB makes it difficult to predict local flow paths, Central Oklahoma aquifer water table data taken from the 1992 USGS Hydrologic Atlas show that regional groundwater flow under Tinker AFB varies from west/northwest to southwest depending on location. This finding is supported by contoured potentiometric data from Base monitoring wells, which show groundwater movement in the upper aquifer zones to generally follow regional dip. Measured normal to potentiometric contours, groundwater flow gradients range from 0.0019 to 0.0057 ft/ft. However, because flow in the near surface portions of the aquifer at Tinker AFB is strongly influenced by topography, local stream-based levels, complex subsurface geology and location in a recharge area, both direction and magnitude of groundwater movement is highly variable. The interaction of these factors not only influences regional flow, but gives rise to complicated local, often transient, flow patterns at individual sites.

Several examples demonstrate this variability. Historical water level data around Crutcho Creek indicate that groundwater flow in that area is predominantly to the southwest. However, during high flow conditions bank recharge occurs and shallow local flow patterns near the creek may be reversed. This pattern is probably in effect at other streams as well. In the northeast quadrant of the Base, several factors contribute to groundwater "mounding" in the USZ and to formation of a groundwater high in the LSZ. This mounding leads to radial or semiradial groundwater flow at shallow depths. Finally, in the northeast part of the Base where sufficient data exist, comparison of potentiometric contours from successively deeper levels in the LSZ suggests that groundwater flow directions change with depth, gradually turning from west/southwest to northwest. This change in regional flow is attributed either to effects of pumping from deep water supply wells in the area and/or to the presence of the Deep Fork River located to the north. This river, along with the Canadian River south of Tinker AFB, has been demonstrated by the USGS to act as a major discharge point for regional groundwater in Central Oklahoma.

Surface Water. The interaction of surface water with groundwater is an important factor in predicting local groundwater flow patterns at Tinker AFB. Although no technical stream study data are presently available to determine what degree of interaction occurs between streams and groundwater, some qualitative observations provide clues to the importance of

this system. The direction of stream flow on Tinker AFB appears to be controlled largely by a topographic divide that extends from southwest to northeast across the south part of the Base. Streams that originate on the north side of the divide flow to the north, including Soldier Creek, Crutcho Creek, and Kuhlman Creek. Elm Creek, which has its origin on the southeast side, flows to the south. Streams that flow northward become perennial before leaving the Base and with no other constant source of water available are considered to be recharged by the aquifer (gaining streams). Some data indicate, however, that these streams become dry north of the Base during periods of lower precipitation and lose water to the aquifer (losing streams). Information from wells and piezometers near the ponded section of Soldier Creek at the industrial wastewater treatment plant also suggests that the pond contributes to the groundwater (a losing stream) in the LSZ at that location. Portions of Soldier Creek tributaries (near their headwaters, off-Base) flow only intermittently and probably recharge the aquifer through infiltration during periods of higher precipitation. Finally, where groundwater and stream elevations are the same, the observed direction of groundwater flow may be affected by transient factors such as bank storage from periods of increased precipitation.

Man-Made Structures. In the conceptual model of Tinker AFB, it is recognized that man-made features such as buried utilities (storm drains, waste lines) may further complicate the shallow groundwater situation. An additional problem encountered in generating the model involves improper monitoring well construction practices, which not only may contribute preferred pathways for groundwater (and contaminant) movement where wells have multiple screens or overlie long filter packs, but also often provide nonrepresentative, biased groundwater, and sample data.

The complex groundwater system at Tinker AFB makes correct placement and construction of monitoring and extraction wells critical. A good understanding of the conceptual hydrologic framework is essential to obtain representative data and to minimize errors. An integrated hydrologic conceptual model provides an overview of the groundwater system and leads in turn to more effective site project management.

3.3.2 Site Hydrology

Wells were installed in both the USZ and the LSZ at FTA2. The elevations of the potentiometric surface of the USZ at the site range from 1231.64 feet above msl at monitoring well (MW) 2-63B to 1234.53 feet above msl at MW2-65B, the upgradient well (Figure 5-3). The

hydraulic gradient is approximately 0.0076 ft/ft. The general groundwater flow direction is approximately south-southwest towards Crutcho Creek.

Elevations of the potentiometric surface of the LSZ at the site range from 1187.94 feet above msl at MW2-64A to 1190.18 feet above msl at MW2-65A, the upgradient well (Figure 5-4). The hydraulic gradient is approximately 0.0078 ft/ft. The general groundwater flow direction is to the southwest. Site hydrology is discussed further in Chapter 5.0.

3.4 Soils

The surface soils of Tinker AFB have been studied by the U.S. Department of Agriculture (USDA), Soil Conservation Service (1969) and by several soil boring projects conducted for geotechnical (foundation construction) investigations. Surface soils of the installation area are predominantly of two basic types: residual and alluvial. The three major soil associations (Table 3-2) mapped within installation limits are Darrell-Stephenville, Renfrow-Vernon-Bethany, and Dale-Canadian-Port. The residual soils associations, Darrell-Stephenville and Renfrow-Vernon-Bethany are the products of the weathering of underlying bedrock. The alluvial materials of the Dale-Canadian-Port association are stream-deposited silts and sands, which are typically restricted to floodplains of area streams.

Table 3-2

Tinker AFB Soil Associations
(Source: USDA, 1969)

Association	Description	Thickness (in.)	Unified Classification[a]	Permeability (in./hr)
Darrell-Stephenville: loamy soils of wooded uplands	Sandy loam Sandy clay loam Soft sandstone (Garber Sandstone)	12-54	SM,ML,SC	2.0-6.30
Renfrow-Vernon-Bethany: loamy and clayey soils on prairie uplands	Silt loam - clay Clay loam Shale (Fairmont Shale)	12-60	ML,CL,MH,CH	<0.60-0.20
Dale-Canadian-Port: loamy soil on low benches near large streams	Fine sandy loam Silty clay loam Loam Clay loam	12-60	SM,ML,CL	0.05-6.30

[a]Unified classifications defined in U.S. Bureau of Reclamation, 5005-86.

4.0 Description of Investigative Methods

The Phase I field investigation of the subsurface conditions at FTA2 was conducted from October through December 1993. All activities conducted during the field investigation program were performed in accordance with the Work Plan, the Data Management Plan, the Data Collection Quality Assurance Plan, the Health and Safety Plan, and their Amendments (IT, 1993b). As a Phase I investigation, field activities were designed to provide information on subsurface lithologies and the existence and nature of contamination, if any, in the soils and/or groundwater beneath FTA2. Recommendations for further investigation are contained in Chapter 9.0. Field investigation activities described in the following sections included, but were not limited to, subsurface soil sampling followed by monitoring well installation and groundwater sampling (Table 4-1). A total of eight monitoring wells, four shallow and four deep, were installed at the site (Figure 4-1). In addition, a deep (100-foot) pilot hole was drilled at one of the sites.

4.1 Shallow Monitoring Well Installation

Four shallow monitoring wells were installed in the aquifer (USZ) to determine the existence and degree, if any, of groundwater contamination in the uppermost aquifer attributable to activities at this former fire training area. Groundwater flow at FTA2 was presumed to be toward the southwest based upon the Tinker AFB potentiometric surface maps for the USZ and LSZ (Figures 3-5 and 3-6). In addition, FTA2 lies north and northeast of Crutcho Creek and an unnamed tributary, respectively (Figure 4-1) which probably serve as discharge points for shallow groundwater intersecting the stream channels during low flow periods. However, during periods of high flow, this gradient could temporarily be reversed in the vicinity of the creeks due to bank recharge causing groundwater to flow in a northerly direction.

To establish background constituent levels shallow MW2-65B was placed upgradient, approximately 200 feet north-northeast of FTA2 (Figure 4-1). This upgradient location is a sufficient distance from the creek not to be affected by any localized shifts in groundwater flow due to bank recharge. Three shallow monitoring wells (MW2-62B, MW2-63B, and MW2-64B) were placed downgradient from FTA2 to the southeast, south, and southwest, respectively. Comparing analytical results from the upgradient well with results from the three downgradient wells makes it possible to determine whether constituents from this former fire training area are migrating into and adversely impacting the USZ.

Table 4-1

Fire Training Area 2
Summary of RFI Field Activities

Type of Activity	Number of Locations	Cumulative Footage of Borings/Wells	Average Footage per Boring/Well	No. of Samples Collected for Chemical Analysis					Analyses Performed	Geotechnical[1] Samples
				Normal Samples	Duplicates	Rinsates	Field Blanks	Totals		
Shallow Monitoring Well Installation	4	144	36.0	0	0	0	0	0	VOCs, SVOCs, Metals	0
Deep Monitoring Well Installation	4	291	72.8	21	1	1	0	23	VOCs, SVOCs, Metals	2
Stratigraphic Pilot Boring	1	100	100	0	0	0	0	0	VOCs, SVOCs, Metals	0
TOTALS	9	535	n/a	21	1	1	0	23		2
Shallow Well Groundwater Sampling	4	n/a	n/a	4	1	0	1	6	VOCs, SVOCs, TOCs, TPH, Metals, Inorganic Parameters, COD, Phenols	n/a
Deep Well Groundwater Sampling	4	n/a	n/a	4	0	0	0	4	VOCs, SVOCs, TOCs, TPH, Metals, Inorganic Parameters, COD, Phenols	n/a
TOTALS	8	n/a	n/a	8	1	0	1	10		n/a

Notes:

[1] Geotechnical analysis included grain size distribution, moisture content, cation exchange capacity, and vertical permeability.

VOCs - Volatile Organic Compounds - EPA Method 8240

SVOCs - Semivolatile Organic Compounds - EPA Method 8270

Metals - EPA Method 6010-Al, Ag, As (EPA Method 7060), Ba, Be, Cd, Cr, hexavalent Cr (EPA Method 7196), Cu, Fe, Pb (EPA Method 7421), Ni, Zn, and Hg (EPA Method 7471)

TPH - Total Petroleum Hydrocarbon - EPA Method 418.1/9071

TOCs - Total Organic Carbon - EPA Method 415.1

Inorganic Parameters - PO_4, SO_4, Cl, Si, Alkalinity, Total Dissolved Solids, Total Suspended Solids, Nitrate/Nitrite, Total Kjeldahl Nitrogen (TKN), Ca, Mg, Mn, Na, K

COD - Chemical Oxygen Demand - EPA Method 410.1

Phenols - EPA Method 9066

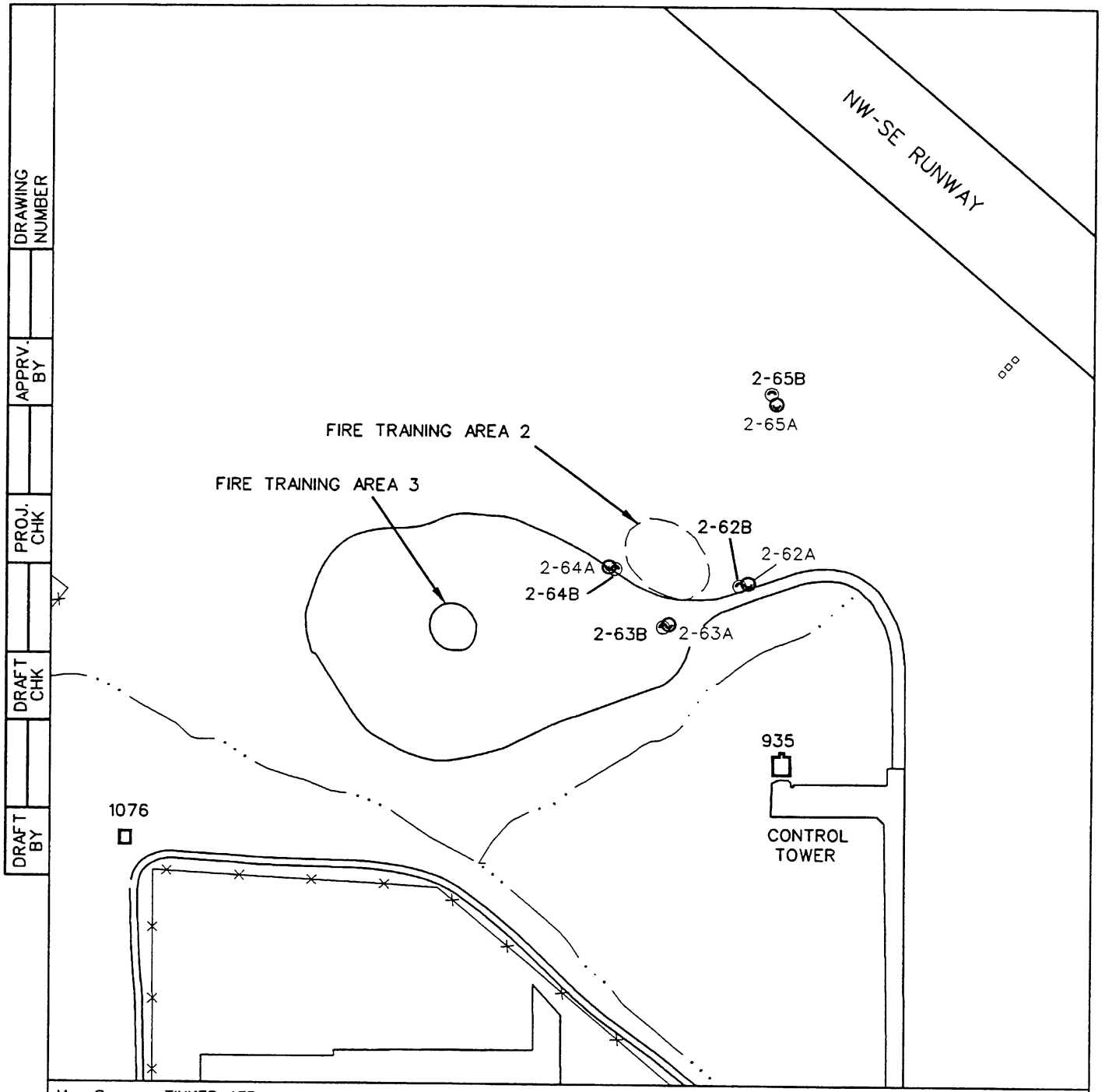

FIGURE 4-1
LOCATIONS OF MONITORING WELLS
FIRE TRAINING AREA 2

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Boreholes for the shallow monitoring wells were advanced with hollow-stem augers. Conditions permitting, boreholes were sampled continuously for lithologic purposes with 5-foot tube samplers. Upon encountering harder strata resulting in auger refusal, the continuous tube sampler was exchanged for a center bit making it possible to advance borings through less penetrable materials. Analytical samples were not collected from shallow monitoring well borings as they were drilled adjacent to the deep monitoring well borings which were analytically sampled.

Generally, once boreholes had been advanced to a target depth, augers were removed and geophysical logs run in the open hole to determine optimal well settings. The geophysical log suite included natural gamma, spontaneous-potential, and resistivity of the formation along with the caliper of the borehole. In some instances, borehole collapse prevented removal of the augers in which case only a natural gamma run could be made through the augers. Screen intervals were recommended based upon interpretation of geophysical and lithologic logs and were subject to final approval by the Tinker AFB project manager. Overdrilled boreholes were then replugged with bentonite chips or pellets to the depth at which well installation would begin.

After the borehole had been plugged back to the desired depth, the 2-inch stainless steel well string was lowered down hole. To prevent bowing of the casing, the well string was suspended from the surface rather than being allowed to rest at the bottom of the hole. With the well string centered in the borehole, the sand filter pack was poured from the surface to fill the annulus between the well string and the borehole wall to approximately 2 feet above the top of the well screen. On some wells the filter sand could not be poured from the surface due to bridging problems, in which case the filter sand was tremied in with fresh water through a polyvinyl chloride (PVC) tremie pipe. A 2- to 5-foot-thick seal of bentonite chips or pellets was poured in on top of the settled sand pack. When bentonite chips and/or pellets could not be poured into place due to bridging, they were replaced by a bentonite slurry which was tremied in above the filter pack. After the bentonite had been given sufficient time to hydrate, the remaining annular space was filled to the surface with a bentonite/cement grout completing well installation.

The shallow monitoring wells were completed in the first water bearing zone encountered. All wells were constructed with 10-foot screens placed at the base of the well (no sediment sumps), except well MW2-63B in which a 5-foot screen section was installed to avoid penetrating an upper confining layer. (See geophysical logs in Appendix B.) Total depths of

the three downgradient wells (MW2-62B, MW2-63B, and MW2-64B) ranged from 23 to 26 feet below ground surface. The upgradient well MW2-65B, however, was installed to a depth of 47 feet below ground surface since the first saturated section was observed at a depth of approximately 40 feet. This apparent shift in depth to water suggests that the uppermost saturated section screened by the downgradient wells may be pinching out to the north where the upgradient well is located.

4.2 Deep Monitoring Well Installation

Four deep, double cased monitoring wells were installed in the LSZ to determine the existence and degree, if any, of groundwater contamination in that zone. Deep wells were double cased to isolate the USZ in order to minimize cross contamination. The four deep wells (2-62A, 2-63A, 2-64A, and 2-65A) were installed adjacent to corresponding shallow wells forming four shallow-deep well pairs (Figure 4-1). In addition, soil samples collected from above the shallow aquifer water table in each monitoring well boring were chemically analyzed to determine the degree, if any, of subsurface soil contamination at the former fire training area.

As mentioned in the previous subsection, the gradient in the LSZ was presumed to be toward the southwest. Also, due to a confining layer separating the LSZ from the USZ, bank recharge has negligible potential for influencing the groundwater gradient in the LSZ, even for wells near the creeks. Therefore, similar to the shallow well set, 2-65A is the upgradient well while MW2-62A, MW2-63A, and MW2-64A are the downgradient wells. Well 2-65A is used to determine if any contamination is coming on site from upgradient.

Pilot borings for the deep wells were initially advanced down to the water table with 8-inch outside diameter (O.D.) hollow-stem augers. Conditions permitting, the 5-foot tube sampler was used to continuously sample the pilot borings for lithologic logging purposes. Based on odor, field screening with a photoionization detector/flame ionization detector (PID/FID), and visual inspection one sample was collected from each 5-foot section for chemical analysis. When forced to use the center bit to advance borings through harder strata, 2-foot split spoons were used to collect samples for chemical analysis and logging purposes. At each deep well boring, one soil sample was collected for analysis from each 5-foot interval down to the top of the water table where the final analytical sample was collected. At FTA2 this sampling scheme resulted in the collection of 21 total soil samples and one field duplicate, which were each analyzed for VOCs, SVOCs, and priority pollutant metals. A total of two additional samples were collected from the deep well borings for geotechnical analysis, including the

following parameters: grain-size distribution, moisture content, cation exchange capacity (CEC), and vertical permeability.

After the boring had been advanced to the projected confining layer between the USZ and LSZ, a geophysical log was run to determine the optimal depth at which to set the surface casing. After the casing set point was approved by the Tinker AFB project manager, the pilot hole was reamed with a 12-inch O.D. auger to the desired depth in order to set the 8-inch surface casing. The 8-inch carbon steel surface casing was lowered to the bottom of the reamed hole and centered with the drill rig. With the surface casing in place, bentonite/cement grout was tremied into the annular space between the surface casing and the borehole wall. A cement shoe at the bottom of the surface casing prevented any grout from entering the casing. Surface casings were allowed to set 24 hours prior to mud rotary drilling of the lower section for deep well installation. Casing depths in the three downgradient wells ranged between 25 and 30 feet. Surface casing in the upgradient well (2-65A) was set at 55 feet because saturation was encountered at a greater depth than in the other wells. The USZ appears confined at this location. The 55-foot depth was chosen based on drilling information to ensure isolation of the USZ.

After drilling through the cement shoe at the base of the surface casing, deep well installation proceeded as described in Section 4.1 on shallow well installation. Well settings were recommended based upon interpretation of geophysical logs and were subject to final approval by the Tinker AFB project manager prior to well installation. The deep, double cased monitoring wells were completed to depths ranging from 63 to 76 feet. All of the deep monitoring wells were constructed with 10 feet of screen at the base of the well (no sediment sumps).

4.3 Pilot Hole

In addition to the installation of the eight wells at FTA2, one 100-foot deep stratigraphic pilot hole was drilled solely for geophysical logging purposes. This stratigraphic boring, placed between wells 2-65a and 2-65B, was advanced via mud rotary drilling without collecting any soil samples. Once completed and logged, the stratigraphic boring was grouted to the surface. The primary purpose of this pilot hole was to provide a tie point for Base-wide stratigraphic correlations.

4.4 Surface Completion

As specified by the Tinker AFB project manager, all eight wells installed at FTA2 received flush-mount surface completions. Each of these flush completions consists of a 12-inch-diameter iron manhole cover set into a 4-foot by 4-foot square concrete pad centered on the well casing stick-up. To divert runoff away from the wells, the concrete pads are sloped away from the manhole covers (set no more than 4 inches above the ground) to the outer edges of the pads which are flush with the ground surface. To ensure the security of the wells, each well is fitted with a watertight and airtight, locking well cap. As requested, all the padlocks are keyed identically, and all bolts for the manhole covers are the same size.

4.5 Well Development

Once the surface completions had been given sufficient time to cure, wells were developed through a combination of surging, bailing, and pumping. A nitrogen airlift technique was used to remove sediment from some wells in which surging and bailing could not remove excess sediment. A minimum of five well volumes of water was purged from each well during development. Purging and/or surging continued until the pH of the well had dropped and stabilized, indicating that any drilling mud, dissolved grout or other foreign material introduced during well installation had been sufficiently flushed out of the well. Well development was considered complete when the well was producing water that was clear to the unaided eye and met final approval by the Tinker AFB project manager.

4.6 Groundwater Sampling

To provide the wells with adequate time to recover and stabilize after development, the newly installed wells at FTA2 were allowed to sit for 3 days prior to the first groundwater sampling event. Static groundwater levels and total depth measurements were recorded prior to purging for sampling. The water level data were later used to contour potentiometric surface maps of the USZ and the LSZ. All wells were then purged to ensure that water samples representative of aquifer conditions would be obtained during sampling. Wells were considered sufficiently purged once three well volumes of water had been removed from a well or the well had been purged to dryness. While purging, pH, temperature, and conductivity readings were collected and monitored for unusual variations that would indicate that additional well volumes should be evacuated before sampling.

A total of eight groundwater samples and one field duplicate were collected from the wells at FTA2. To prevent cross contamination between the wells and to eliminate decontamination time, each well was sampled with a disposable bailer and rope, which were discarded with

project waste after use. A final round of field pH, temperature, and conductivity readings was recorded as the samples were being collected. Groundwater samples were each analyzed for the following parameters: VOCs, SVOCs, total organic carbon (TOC), total petroleum hydrocarbon (TPH), priority pollutant metals, standard inorganic groundwater parameters, chemical oxygen demand (COD), and phenols.

4.7 Elevation and Location Surveying

After completion, the elevations and locations of the monitoring wells and the stratigraphic pilot hole at FTA2 were determined by a State of Oklahoma licensed surveyor. For each well, the ground surface, the top of the well casing, and the top of the concrete pad were surveyed relative to Base datum information provided by Tinker AFB. For the stratigraphic boring, only the ground surface directly adjacent to the grouted hole was surveyed. Elevations and locations of any pre-existing monitoring wells and piezometers at FTA2 were also determined. All locations are provided in the Base coordinate system and all elevations are relative to msl.

5.0 Investigation Results

5.1 Data Quality Evaluation

The following sections provide an evaluation of the data quality and the results of the RFI performed at the FTA2. Section 5.1 discusses the methods and procedures used to ensure data quality and useability. Section 5.2 provides a discussion of the source characterization and the potential of the FTA2 as a contributing source of contamination. Section 5.3 discusses the hydrology of FTA2. Section 5.4 provides details regarding the contaminant characterization via analysis of the results of the soils and groundwater investigation.

The quality of the analytical data used for the RFI must be sufficient to support the associated risk management decisions. Data quality is ensured through adherence to Data Quality Objectives (DQO) and the sampling and analysis program outlined in the Data Collection Quality Assurance Plan (DCQAP) (IT, 1993b). The DCQAP identifies sampling locations, sampling methods, DQOs, field and laboratory quality control testing, analytical methods and reporting, and data evaluation and verification. The quality control of field and laboratory activities; the assessment of precision, accuracy, and comparability of the data; and the verification of the data are the most significant activities designed to ensure compliance with the DQOs.

5.1.1 Field Quality Control

Field quality control testing involved the collection of control samples to aid in evaluating inaccuracies which may be induced by field activities. These control samples include:

- ***Field Blanks.*** A field blank is an amount of water, gas, or solid that is provided to demonstrate the absence of contamination during sampling. Field blanks were only collected for groundwater and waste samples.

- ***Trip Blanks.*** Volatile organics samples are susceptible to contamination by diffusion of organic contaminants into the sample container. Therefore, trip blanks were analyzed to monitor for sample contamination during shipment and storage. No trip blanks were obtained for soil samples, due to the dissimilarity in matrix between the blanks and the actual samples.

- ***Rinsate Blanks.*** A rinsate blank is a volume of rinse solution (e.g., deionized distilled laboratory water or organic solvent) used to rinse a sampling tool which contacts more than one sample. The rinse solution was collected after the sampling tool was used and cleaned, to demonstrate that no residual contamination remained on the tool to carry over to the next sample.

- ***Field Duplicates.*** Duplicate analyses were performed to evaluate the precision of analysis. Both field and laboratory duplicates were taken and analyzed. Results of these analyses were used to determine the relative percent difference (RPD) between replicate samples.

5.1.2 Laboratory Quality Control

Laboratory quality control testing involved the use of control samples to aid in evaluating quality control errors which may be induced by laboratory activities. The control samples include:

- ***Method Blanks.*** A method blank is a volume of deionized and distilled laboratory water for liquid samples, or a purified solid matrix for soil/sediment samples, carried through the entire analytical procedure to identify contaminants introduced during the procedure.

- ***Bottle Blanks.*** At a frequency of 1 percent or greater, laboratory-prepared sample containers were tested to verify that the container cleaning procedure is performed acceptable. Parameters of concern for the particular container were tested (e.g., metals for plastic containers).

- ***Laboratory Blanks.*** Distilled water-filled volatile organic analysis (VOA) vials were stored in the laboratory using the same method of storage used for field samples. If the field and trip blanks contained high concentrations of contaminants, the laboratory blank was analyzed to identify the source of contamination.

- ***Matrix Spikes.*** To evaluate the effect of sample matrix on analytical methodology accuracy, a separate sample aliquot was spiked with the analyte of interest and analyzed with approximately ten samples or, if a smaller number of samples are associated with a test series, for each group of samples.

- ***Surrogate Standards.*** Surrogate standards are compounds added to gas chromatography/mass spectrometry (GC/MS) standards, blanks, and samples prior to extraction or purging to monitor the recovery efficiencies of the sample preparation and analytical procedures on a sample-by-sample basis.

5.1.3 Evaluation of Precision and Accuracy

As part of the analytical quality control testing program, quality control sample results were used to apply precision and accuracy criteria for each parameter that was analyzed. When the analysis of a sample set was completed, the quality control data generated were evaluated based on the following criteria:

- ***Method Blank Evaluation.*** The method blank results were evaluated for high readings characteristic of background contamination. If high blank values were

observed, laboratory glassware and reagents were checked for contamination and the analysis of future samples halted until the system could be evaluated.

- ***Trip, Field, Laboratory, and Rinsate Blank Evaluation.*** Trip, field, laboratory, and rinsate blank results were evaluated for high readings similar to the method blanks described above. If high blank readings were encountered, the procedure for sample collection, shipment, and laboratory analysis would be reviewed.

- ***Duplicate Sample Evaluation.*** Duplicate sample analysis was used to determine the precision of the analytical method for the sample matrix. The duplicate results will be used to calculate the precision as defined by the RPD.

- ***Matrix Spike Evaluation.*** The observed recovery of the spike versus the theoretical spike recovery was used to calculate accuracy as defined by the percent recovery (%R).

- ***Surrogate Standard Evaluation.*** The results of surrogate standard determinations were compared with the true values spiked into the sample matrix prior to purging or extraction and analysis, and the percent recoveries of the surrogate standards were determined.

- ***Comparability Between Data Sets.*** Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Comparability for sampling and analysis was achieved by specifying and using only well-recognized techniques and accepted standard EPA methods and procedures for sampling and analysis reporting of representative samples.

5.1.4 Data Verification

Data packages and parameters were evaluated against the following criteria to ensure data validity prior to use:

- Sampling documentation (e.g., sample collection log, Chain-of-Custody Form, and Request for Analysis Form) matches samples submitted to samples analyzed.

- Chain-of-Custody Forms are complete.

- Sample identification summary for each sample is present.

- Analytical results for each sample include correct units, detection limits, method used, date sampled, date extracted, date analyzed, dilutions noted.

- Holding times were met.

- Data on field and laboratory duplicate samples for RPDs were within QC limits.

- Matrix spike/matrix spike duplicate (MS/MSD) recoveries were within QC limits.
- Method blanks were within control limits.

5.1.5 Data Useability

The data verification did not identify any reoccurring problems with analytical procedures or analytical reporting. Precision and accuracy for each analytical method as demonstrated by the evaluation or surrogate recoveries, laboratory control samples, MS, and MSD recoveries were satisfactory. The sample identification summaries for all samples and methods were present and complete. No data were found to be invalid. All deficiencies encountered were minor and did not affect the overall quality of the data, since other DQOs were met. Deficiencies were generally the result of matrix interference.

The analytical data generated from the RFI are of sufficient quality to make evaluations and support recommendations.

5.2 Source Characterization Results

FTA2 was used infrequently from 1962 to 1966 for training fire response personnel. The area was an unlined shallow depression or pit in which water and then flammable fuels, waste oils, and waste solvents were placed and ignited. Site characterization for this RFI has been designed to investigate whether any of the hazardous fuel materials, or any other hazardous constituents, have been released to the subsurface.

In a 1987 investigation by the USACE (described in Section 2.4), seven soil borings were made to characterize this potential contaminant source (USACE, 1988). Three borings were placed within the SWMU area and soil samples were collected for chemical analysis. Since at that time there was no visible aboveground trace of the former training area, four additional borings were made in the area to help verify that the first three borings had not been wrongly located outside of the SWMU. Samples from the second group of borings were examined for odors and visual appearance. These latter samples had no discoloration or odor, and appeared to be undisturbed soils. All seven borings penetrated approximately 4 feet of unconsolidated soils and 1 to 3 feet of the underlying shale, where auger refusal occurred. None of these borings extended deep enough to encounter a zone of groundwater saturation.

Chemical analysis of soil samples from the first three borings of the previous investigation indicated that four hazardous organic compounds (methylene chloride, acetone, bis[2-ethyl-

hexyl]phthalate, and tetrahydrofuran) were sporadically detected. While these compounds were also detected in several laboratory blanks, elevated concentrations in some samples suggested that methylene chloride and bis(2-ethylhexyl)phthalate were also present in the soil at the site. However, concentrations of the compounds were below toxicological levels (USACE, 1988).

Other compounds were also detected in the 1987 investigation. Relatively low (<70 milligrams per kilogram [mg/kg]) levels of several fuel-related but nonhazardous organic compounds were measured in the samples. However, none of the common volatile compounds usually associated with fuels were detected. Finally, concentrations of metals in these samples were found to be within the range measured in background samples. The details of this study are described in the IRP Response Action, Final Report (USACE, 1988).

No samples were collected of the material burned in the pit.

5.3 Hydrology of FTA2

Hydrologic conditions in the vicinity of FTA2 have been interpreted based on logs of the four pairs of monitoring wells drilled for the RFI (Figure 5-1). Each well pair consists of a shallow well completed in the USZ and a deeper well complete in the LSZ. Installation of these wells is described in Chapter 4.0. The boring logs and well construction diagrams are included in Appendix A.

The geology of FTA2 is illustrated by a cross section of the area, which also shows locations of the well screens (Figure 5-2). Approximately the upper 10 to 15 feet of the geologic section below the site consists of reddish silty clay or clayey silt of the Hennessey Group. Thin layers of anhydrite or gypsum occur near the base of this zone.

Underlying the Hennessey, are interbedded fine sandstone and siltstone of the Garber Sandstone, with occasional interbedded clayey layers. The sandstones range in hardness from loose (lightly cemented) to well indurated. The clay layers range from slightly plastic to moderately plastic and often contain significant quantities of silt and sand, with occasional gravel clasts. A layer of hard siltstone appears to be traceable across the area at a depth of approximately 40 to 45 feet. The maximum depth of exploration was 79 feet below grade in well 2-65A.

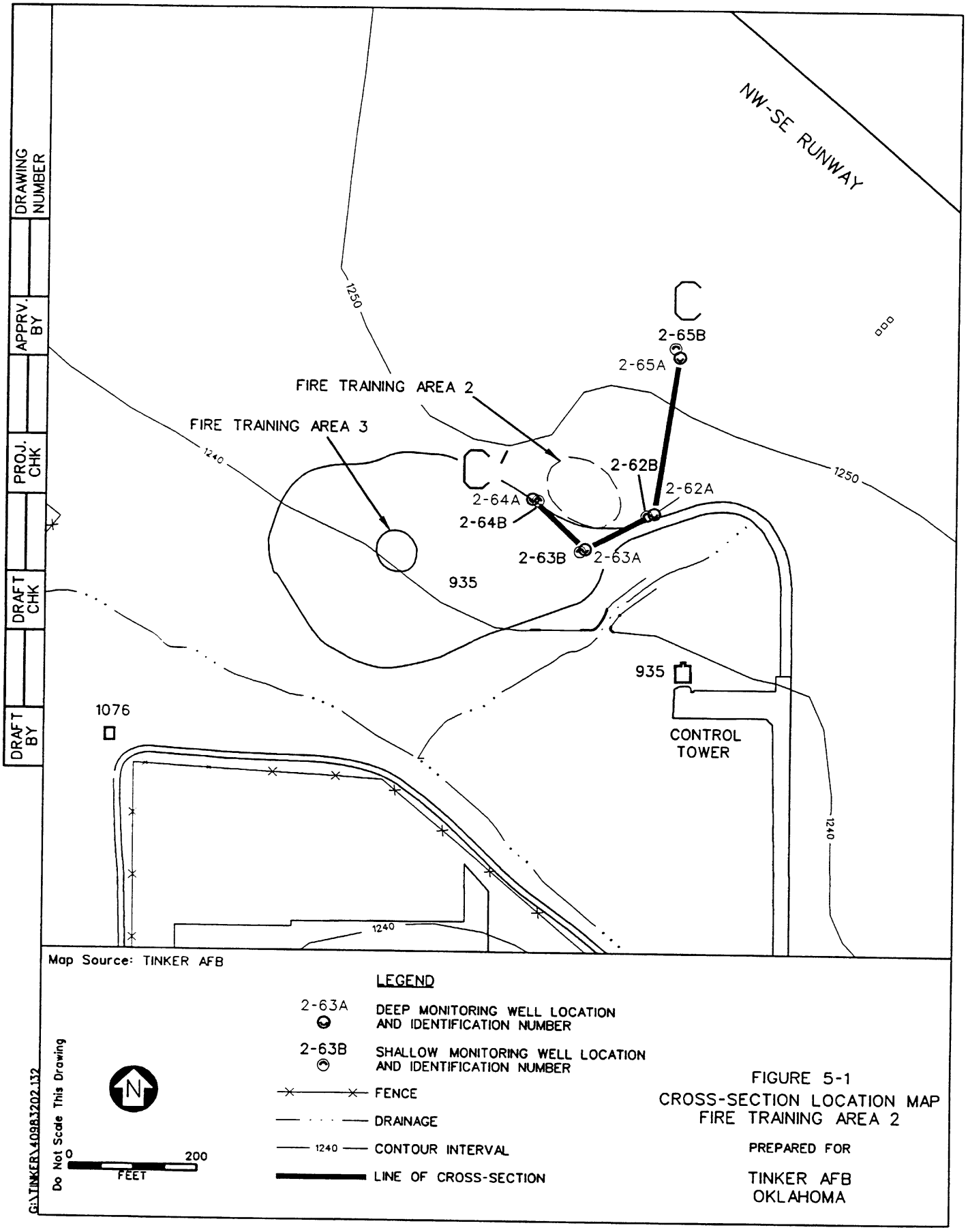

FIGURE 5-1
CROSS-SECTION LOCATION MAP
FIRE TRAINING AREA 2

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DRAWING NUMBER 409832-B5

APPRV. BY	PROJ. CHK	DRAFT CHK	JEA 1/28/94	DRAFT BY

WEST **C** — **C'** EAST

MW-2-65A MW-2-65B | MW-2-62A MW-2-62B | MW-2-63A MW-2-63B | MW-2-64A MW-2-64B

ELEVATION (FT. MSL)

1260 1250 1240 1230 1220 1210 1200 1190 1180 1170

GROUND SURFACE

CLAY TO GRAVELLY CLAY

CLAYEY SILT TO SILT

SANDY SILT

SILTY SAND

SAND

SILTY SAND

CLAYEY GRAVELLY SAND

SAND *

HARD SILT?

49.0'

SAND?

HARD SILT?

SANDY CLAY

CLAYEY SAND

79.0'

SANDY SILT

SILTY SAND

SAND

SANDY SILT

SILTY SAND

33.0'

SAND

HARD SILT

SAND

70.0'

HARD SILT

FILL

CLAY

CLAYEY SILT TO SILT

LAMINATED SILTY SAND

SAND

SILT

29.0'

SILTY SAND

SANDY SILT

SILTY SAND

33.0'

SAND

SAND

HARD SILT

SILT

SAND

67.0'

HARD SILT

75.0'

EXPLANATION

- WELL IDENTIFICATION
- WELL
- WATER LEVEL ELEVATION
- SCREENED INTERVAL
- 79.0' TOTAL DEPTH DRILLED
- LITHOLOGIC CONTACTS (DASHED WHERE INFERRED)
- * LITHOLOGIES BELOW 38.0 FEET IN MW-2-65A ARE BASED ON DRILLING RATES.

10 5 0 25 50

SCALE IN FEET
VERTICAL EXAGGERATION = 5X

FIGURE 5-2
CROSS-SECTION C-C'
FIRE TRAINING AREA 2

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Do Not Scale This Drawing

The water levels in the LSZ wells are approximately 45 feet below those measured in the USZ wells. The hard siltstone layer whose top occurs at the approximate depth of 45 feet (approximately 1,205 ft msl) appears to be the aquitard causing the separation in this area. The water levels in the USZ wells indicate that the water table is approximately 15 feet below grade. The LSZ wells are completed in the upper part of the Garber-Wellington aquifer and water levels are at a depth of approximately 60 feet below grade (approximately 1,188 to 1,190 ft msl).

Water levels in the USZ appear to be several feet lower than the bed of a nearby southwest-flowing tributary of Crutcho Creek. In addition, the water levels are projected to be several feet lower than the bed of the main stem of Crutcho Creek approximately 400 feet southwest of FTA2. It appears, therefore that these streams would not be discharge areas for groundwater (gaining streams) in this area unless water levels in the USZ rose significantly.

The water levels in the USZ suggest that the water table is relatively flat in the area of wells 2-62B, 2-63B, and 2-64B. Since field observations suggest that there is often flow in the southwest-flowing tributary of Crutcho Creek, the flat gradient may reflect a groundwater mounding effect from infiltration of surface water in the tributary stream as it emerges from the nearby culvert which passes beneath the NW-SE Runway (Figure 5-1). The upstream part of this tributary drains an area occupied by several industrial facilities and ramp areas on the east side of the airfield. Any contaminated water discharged in these areas would have the potential to percolate into the subsurface and affect water quality in the USZ near FTA2.

Potentiometric surface maps for the USZ and the LSZ are shown in Figures 5-3 and 5-4, respectively. The maps indicate that groundwater flow in both zones is toward the southwest. The water levels in both zones at FTA2 are generally consistent with the water levels shown on maps of the Base-wide conceptual model of the two principal water-bearing zones at Tinker AFB. Due to the relatively flat gradient in the vicinity of the three wells mentioned in the previous paragraph, several interpretations of the configuration of the USZ water table are possible. Figure 5-3 shows an interpretation based on the assumption that the tributary to the southeast of FTA2 is a losing stream and creates a small mound or "nose" on the sloping water table.

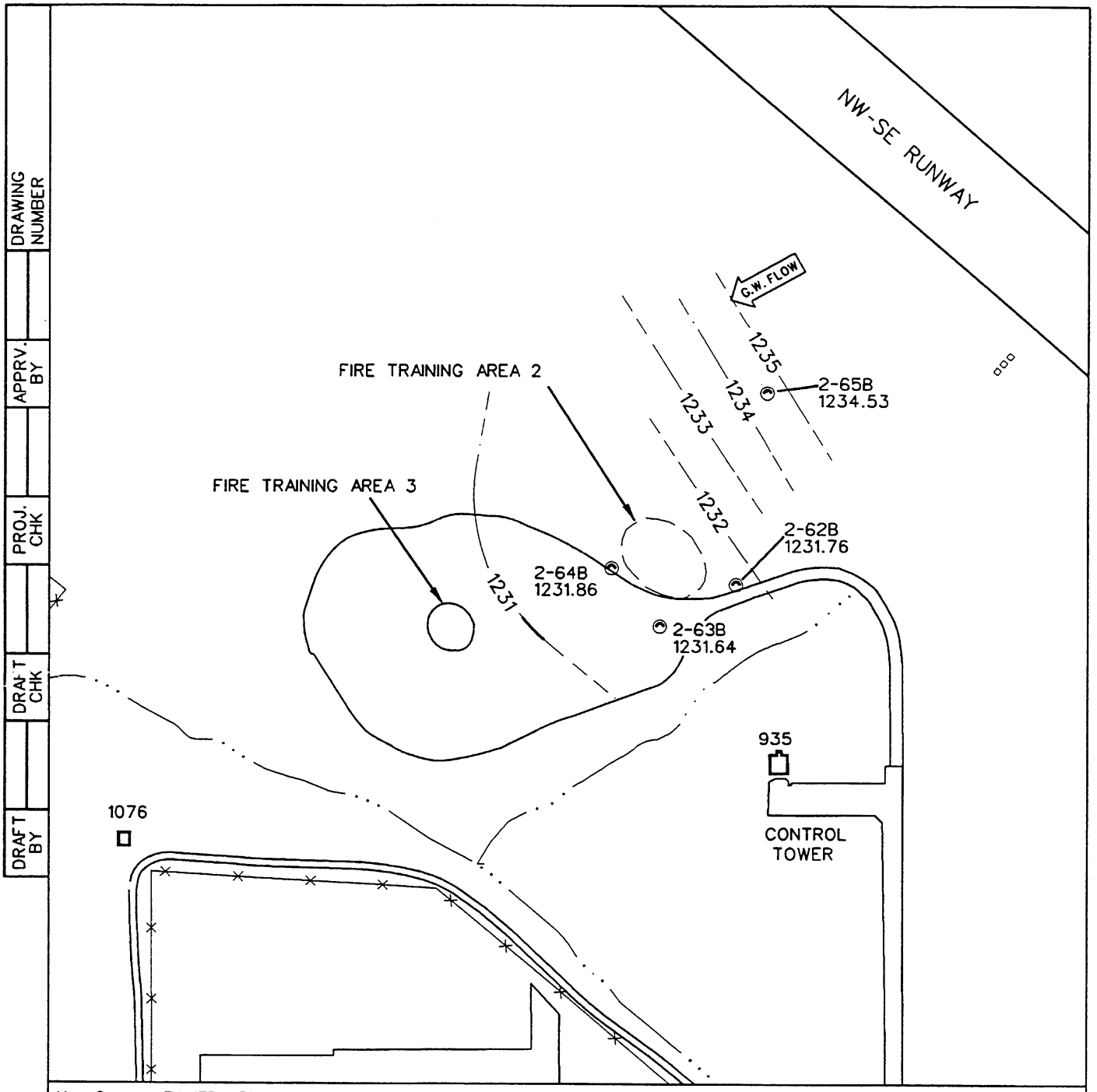

FIGURE 5-3
LOCAL POTENTIOMETRIC SURFACE MAP
UPPER SATURATED ZONE
FIRE TRAINING AREA 2

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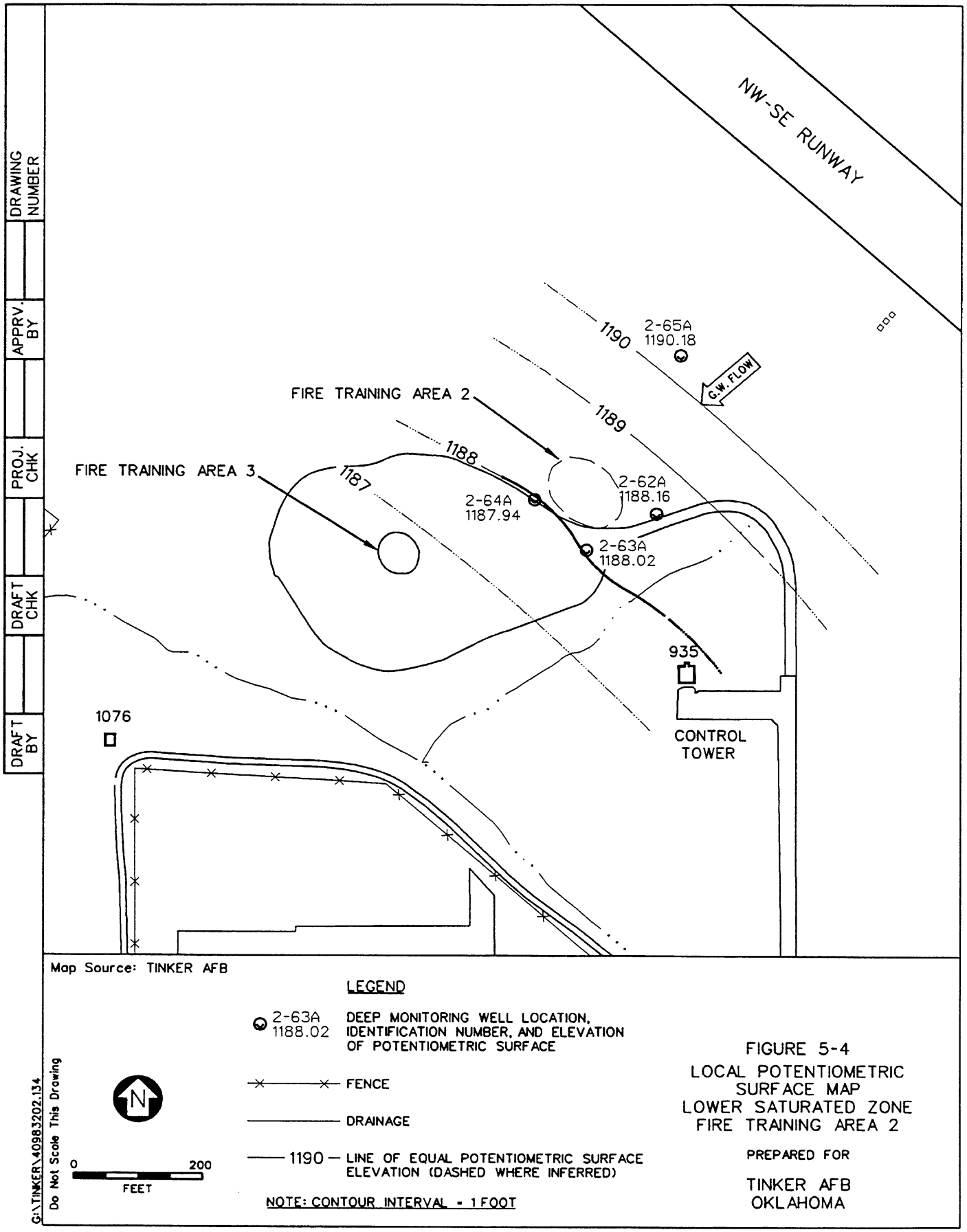

FIGURE 5-4
LOCAL POTENTIOMETRIC SURFACE MAP
LOWER SATURATED ZONE
FIRE TRAINING AREA 2

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5.4 Contaminant Characterization Results

This section describes the analytical of the samples of soil and groundwater collected during the RFI of FTA2. In addition, the establishment of background concentrations for metals in soils in this area is described.

5.4.1 Establishment of Surficial Soil Background Concentrations

Background soil concentrations for trace metals were determined based on a study performed by the USGS (1991). The study area was confined to approximately four counties in central Oklahoma. Tinker AFB lies at the approximate center of this area. A total of 293 B-horizon soil samples were collected throughout this area. Soil samples were collected at the top of the B-horizon, which was usually 20 to 30 centimeters below the surface but ranged from 3 to 50 centimeters below the surface.

The use of B-horizon soil as selected by the USGS for metals background concentrations in soil is conservative in that the soil sampled does not reflect all possible anthropogenic influences. Most of the samples were obtained from hill crests and well drained areas in pasture and forested land, well away from roadways to minimize contamination from vehicular emissions (i.e., nearly "pristine" areas). Trace metal inputs to the study site soils on Base, however, will come from anthropogenic sources outside of the study area, in addition to those sources related to disposal activities or operations within the confines of the study site. Responsibility may thus be taken for more trace metal impacts than are actually attributable to a given site.

An additional level of conservatism was added in the manner in which the site-specific metals concentrations were compared to the background levels. Typically, the environmental concentrations of trace metals at study sites are represented by the arithmetic upper 95^{th} confidence interval on the mean of a normal distribution. This upper 95^{th} confidence interval value is then compared to the background values. The intent of this typical approach is to estimate a Reasonable Maximum Exposure (RME) case (i.e., well above the average case) that is still within the range of possible exposures.

To expedite this comparison and establish greater conservatism, the maximum concentration found at the site of concern, rather than the upper 95^{th} confidence interval value, was compared to the USGS background values. If the environmental concentration of a particular analyte was below or within the minimum-maximum range of the USGS background concentrations, that analyte was considered to be naturally occurring and of no further

concern to this investigation. Given the conservative approach of the comparisons, site-specific metals concentrations would have to significantly exceed the USGS background levels and be attributable to operations at the site before they would be considered a contaminant of concern.

The numerical comparison of site-specific metals concentrations to the USGS background concentrations is presented in the following section.

5.4.2 Soil Characterization

During this investigation of FTA2, chemical analyses were performed on a total of 21 soil samples and one duplicate soil sample collected from the four boreholes drilled for installation of "A"-series monitoring wells into the LSZ. A sample was selected for analysis from each 5-foot interval down to a depth of approximately 20 feet by using the field screening techniques described in Chapter 4.0. Chemical analyses included metals (aluminum, arsenic, barium, beryllium, cadmium, total chromium, chromium VI, copper, iron, lead, mercury, nickel, silver, and zinc) volatile organics, and semivolatile organics. A single sample was collected from the boring for well 2-63A for geotechnical analysis, as described at the end of this section.

The chemical analytical results indicate that the shallow soils have been impacted by organic compounds and possibly metals. Analytical results for the detected analytes are presented in Table 5-1. Appendix D contains a complete listing of analytical results.

Only 1,1,1-trichloroethane (TCA) was confirmed above the method detection limits at concentrations ranging from 5.2 to 6.7 µg/kg. Several SVOCs were detected in the soil samples. These include 1,1,1-trichloroethane (TCA) (ranging from 5.2 to 6.7 µg/kg), bis(2-ethylhexyl)phthalate (ranging from 1.3 to 2.1 mg/kg), di-n-butyl phthalate (ranging from 0.34 to 1.7 mg/kg), and butyl benzyl phthalate (ranging from 0.56 to 0.96 mg/kg). These concentrations are all below the Action Levels given in Chapter 7.0.

Several metals were detected in the soil samples, but all were within the background ranges reported by the USGS. The comparisons of metals to background are shown in Table 5-2.

During the installation of deep monitoring wells 2-62A and 2-63A, a soil sample from each well was collected for geotechnical analysis to determine vadose zone properties. A Shelby tube was used to collect a soil core from each of the two borings. The samples were

Analytical Results for Fire Training Area 2
for Soil
Tinker Air Force Base, Oklahoma
Table 5-1

Well/Boring:	2-62A		2-62A		2-62A		2-62A		2-62A		2-63A		2-63A		2-63A	
Sample ID:	A1561		A1562		A1563		A1564		A1565		A1555		A1556		A1557	
Depth in Feet:	2 - 3		6 - 7		10 - 11		15 - 16		22 - 23		2 - 3		7 - 8		10 - 11	
Parameters	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR
Metals (mg/kg)																
Aluminum	11000	N	15000	N	10000	N	1700	N	750	N	11000	N	11000	N	12000	N
Arsenic - Graphite Furnace	1		3.4		5.4		1.2				3	N				
Barium	630	N	32	N					60	N	900	N	22	N	110	N
Beryllium	0.94		1.3		1.2						1.7		1.4		1.9	
Cadmium	0.69						0.57				0.71				0.77	
Chromium	13		14		14		7.6		3		13		11		20	
Copper	9.8		22		21		1.7		1.1		9.9		15		18	
Iron	11000	N	11000	N	14000	N	7300	N	2400	N	15000	N	10000	N	17000	N
Lead - Graphite Furnace	5	N	5	N	7.1	N	3.2	N	1.5	N	13	N	7.3	N	7	N
Nickel	17		25		21		7.3				19		18		20	
Silver	0.41															
Zinc	22		29		22		7.1		3.1		18		24		27	
Semivolatiles (mg/kg)																
Butylbenzylphthalate																
Di-n-butylphthalate											1.7		0.34		0.83	
bis(2-Ethylhexyl)phthalate																
1,1,1-Trichloroethane	3.1	J	6.7		5.6		5.2		5.4		3.8	J	4.3	J		

Analytical Results for Fire Training Area 2
for Soil
Tinker Air Force Base, Oklahoma
Table 5-1

Well/Boring:	2-63A		2-63A		2-64A		2-64A		2-64A		2-64A		2-64A		2-65A	
Sample ID:	A1558		A1559		A1548		A1549		A1550		A1551		A1552		A1540	
Depth in Feet:	15 - 16		18 - 19		2 - 3		7 - 8		7 - 8		12 - 13		17 - 18		2.5 - 3.5	
Parameters	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR
Metals (mg/kg)																
Aluminum	900	N	1500	N	12000	N	16000	N	12000	N	9900	N	1800	N	8400	N
Arsenic - Graphite Furnace					2.9		1.8		1.7		1.1				2.8	
Barium	20	N			690	N							56	N	150	N
Beryllium					1.4		1.9		1.6		1.5				1.1	
Cadmium			0.9		1.1		0.55								0.74	
Chromium	3.9		4		15		19		14		11		8.5		9.4	
Copper					8.5		22		20		19				5.2	
Iron	2800	N	3700	N	13000	N	13000	N	9800	N	11000	N	3700	N	10000	N
Lead - Graphite Furnace	0.88	N	1.2	N	7.2	N	2.5	N	3	N	7.8	N	1.5	N	8.8	N
Nickel					17		28		22		21		6.3		12	
Silver																
Zinc	4.7		4.8		23		33		26		22		7.8		12	
Semivolatiles (mg/kg)																
Butylbenzylphthalate	0.63		0.57		0.56		0.67		0.78		0.96					
Di-n-butylphthalate	0.76		0.65		1.4		1.2		1.2		1.4		0.061	J		
bis(2-Ethylhexyl)phthalate	1.7		1.7		1.3		1.5		1.9		2.1					
1,1,1-Trichloroethane																

Analytical Results for Fire Training Area 2
for Soil
Tinker Air Force Base, Oklahoma
Table 5-1

Well/Boring:	2-65A		2-65A		2-65A		2-65A		2-65A		2-65A	
Sample ID:	A1541		A1542		A1543		A1544		A1545		A1546	
Depth in Feet:	6 - 7		12 - 13		16 - 17		20 - 21		26 - 27		29 - 30	
Parameters	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR
Metals (mg/kg)												
Aluminum	5900	N	19000	N	6300	N	9000	N	2300	N	1500	N
Arsenic - Graphite Furnace	3.3		1.2		4.1		2.5				2.3	
Barium	69	N	27	N	32	N	54	N				
Beryllium	0.88		2		1		1.9					
Cadmium							1.1					
Chromium	8.2		24		11		37		8.8		6.7	
Copper	5.5		22		9.2		11					
Iron	7200	N	16000	N	11000	N	22000	N	6100	N	4600	N
Lead - Graphite Furnace	5.5	N	3.5	N	9.1	N	5.7	N	3.1	N	2.9	N
Nickel	12		26		13		22		7.9		6	
Silver												
Zinc	15		35		17		26		7.8		5.9	
Semivolatiles (mg/kg)												
Butylbenzylphthalate												
Di-n-butylphthalate												
bis(2-Ethylhexyl)phthalate									0.07	J		
1,1,1-Trichloroethane												

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC Limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated

Table 5-2

Soil Metals Background Comparison
SWMU-8, FTA2, Tinker AFB

Analyte	Site	USGS Background Concentration	
	Maximum Value (ppm)	Detection Limit (ppm)	Range (ppm)
Aluminum	19,000	50	3,800-89,000
Arsenic	5.4	0.1	0.6-21
Barium	900	1	47-6,400
Beryllium	2.0	1	<1-3
Cadmium	1.1	2	<2
Chromium	37	1	5-110
Copper	22	1	<1-59
Iron	22,000	50	1800-58,000
Lead	13	4	<4-27
Nickel	28	2	<2-61
Silver	0.41	2	<2-61
Zinc	35	2	3-79

submitted for geotechnical analysis of the following parameters: grain-size distribution, moisture content, cation exchange capacity (CEC), and vertical permeability. Certificates of analysis are provided as Appendix E. The analytical results are summarized as follows:

Sample Location	2-63A	2-62A
Sample Depth (feet)	-8 to -10	-8 to -9.5
Vertical Permeability (cm/sec)	3.2×10^{-9}	2.9×10^{-9}
Moisture Content (percent)	10.7	9.4
CEC (MEQ/100 grams)	23.78	16.50
Particle Size Distribution	See Appendix E graph	

5.4.3 Groundwater Characterization

Groundwater samples were collected from the eight monitoring wells installed in the vicinity of SWMU-8. Four of the samples are of groundwater from the USZ, and four samples were collected from the LSZ. The positions of the well screens are shown on the cross section in Figure 5-2. The samples were analyzed for VOCs, SVOCs, metals, and standard inorganic groundwater parameters. The analytical results are presented in Tables 5-3 and 5-4.

Organic compounds were detected in groundwater from several of the wells. The greatest number of compounds and highest concentrations were detected in well 2-62B, completed in the USZ. None of the samples from LSZ wells contained any of the organic compounds at concentrations above the method detection limits.

The VOCs detected in the four USZ wells and their maximum concentrations included: trichloroethene (TCE) (8,900 µg/L), cis-1,2-dichloroethene (DCE) (1,700 µg/L), 1,2-dichloroethane (DCA) (550 µg/L), chlorobenzene (240 µg/L), trans-1,2-dichloroethene (140 µg/L), 1,1,2-TCA (9.0 µg/L), 1,2-dichloropropane (7.3 µg/L), 1,1-DCE (6.0 µg/L), and benzene (5.7 µg/L). Volatiles detected but which were below the quantitation limit were toluene, tetrachloroethene (TCE), and chloroform.

Concentrations of VOCs were above the corrective action level (CAL) proposed in 40 CFR 264.521, primarily in samples from well 2-62B. These VOCs include, in well 2-62B, the concentrations of 1,1,2-TCA and tetrachloroethene. Other compounds, for which no CAL is available, were present in well 2-62B at concentrations which exceeded MCLs, including TCE, cis-1,2-DCE, 1,2-dichloropropane, 1,2-DCA, benzene, and trans-1,2-dichloroethene. In addition, concentrations of TCE in USZ wells 2-63B, 2-64B, and 2-65B also exceeded CALs.

Analytical Results for Fire Training Area 2
For USZ Groundwater
Tinker Air Force Base, Oklahoma
Table 5-3

Well/Boring:	2-62B		2-62B		2-62B		2-63B		2-64B		2-65B	
Sample ID:	A1601		A1602		A1665		A1600		A1603		A1604	
Depth in Feet:	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Parameters	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR
Metals (mg/L)												
Aluminum	8.2		5.1				5.9		1.4		0.95	
Barium	0.21		0.19				0.35		0.23		0.24	
Calcium	48	N	58	N			61	N	59	N	80	N
Chromium	0.04	N	0.029	N			0.014	N				
Copper	0.043	N	0.049	N								
Iron	11		5.5				13		2		1.1	
Lead - Graphite Furnace	0.004		0.0031									
Magnesium	43		52				45		33		52	
Manganese	0.14	N	0.1	N			0.23	N	0.048	N	0.065	N
Potassium											1.7	
Selenium							0.1	N				
Sodium	110		130				59		46		43	
Zinc	0.024	N	0.021	N			0.022	N				
Semivolatile (ug/L)												
1,3-Dichlorobenzene	53		46									
Volatile (ug/L)												
1,1,2-Trichloroethane	9		7.3									
1,1-Dichloroethene	5.7		6									
1,2-Dichlorobenzene	1900	D	1700	D								
1,2-Dichloroethane	500		550		430		1.2	J	2	J		
1,2-Dichloropropane	7		7.3									
1,4-Dichlorobenzene	290	D	250	D								
Benzene	5.4		5.7									
Chlorobenzene	220		240		220				1.2	J		
Trichloroethene	8300	D	8900	D	7900	D	33		96		99	
cis-1,2-Dichloroethene	1600	D	1700	D	1300		45		39		24	
trans-1,2-Dichloroethene	130		140						3.5	J		

Analytical Results for Fire Training Area 2
For USZ Groundwater
Tinker Air Force Base, Oklahoma
Table 5-3

Well/Boring:	2-62B		2-62B		2-62B		2-63B		2-64B		2-65B	
Sample ID:	A1601		A1602		A1665		A1600		A1603		A1604	
Depth in Feet:	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Parameters	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR	Result	QFR
Miscellaneous (mg/L)												
Alkalinity, Titrimetric	520		330				470		380		500	
Chemical Oxygen Demand	35											
Chloride by Ion Chrom.	87		89				39		34		57	
Nitrate and Nitrite	2.9		2.7				3.8		3.8		2.6	
Silica	7.3		6.9				8.9		4.3		11	
Sulfate by Ion Chrom.	110		230				36		24		37	
Total Phosphorus	0.15											
Total Dissolved Solids	630		660				510		450		650	
Total Kjeldahl Nitrogen	0.38											
Total Organic Carbon	3		3				2.2		1.2		1.6	
Total Suspended Solids	190		250				750		160		42	

B = Analyte was also found in sample blank
D = Compound identified at a secondary dilution factor.
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC Limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated

Analytical Results for Fire Training Area 2
For LSZ Groundwater
Tinker Air Force Base, Oklahoma
Table 5-4

Parameters	Well/Boring: 2-62A Sample ID: A1648 Depth in Feet: 0 - 0 Result	QFR	Well/Boring: 2-63A Sample ID: A1607 Depth in Feet: 0 - 0 Result	QFR	Well/Boring: 2-64A Sample ID: A1608 Depth in Feet: 0 - 0 Result	QFR	Well/Boring: 2-65A Sample ID: A1609 Depth in Feet: 0 - 0 Result	QFR
Metals (mg/L)								
Aluminum	1.5		32	N	2.9	N	2.8	N
Arsenic - Graphite Furnace			0.018					
Barium	0.56		3.7		0.56			
Cadmium			0.0066					
Calcium	68		100		61		36	
Chromium	0.021		0.12	N	0.075	N	0.053	N
Copper			0.1					
Iron	1.1		57		4.8		4.3	
Lead - Graphite Furnace			0.025		0.0042			
Magnesium	42		57		35		19	
Manganese	0.016		1.2	N	0.12	N	0.067	N
Nickel			0.079	N	0.067	N		
Potassium			7.3					
Sodium	45		25		23		22	
Zinc			0.1	N	0.021	N	0.028	N
Miscellaneous (mg/L)								
Total Dissolved Solids	450		190		388		258	
Total Kjeldahl Nitrogen							0.26	N
Total Suspended Solids	45		1900		200			
Alkalinity, Titrimetric	390		380		350		190	
Chloride by Ion Chrom.	9.9		17		26		24	
Nitrate and Nitrite	5.3		3.3		1.1		0.78	
Silica	11		8.8		8.6		11	
Sulfate by Ion Chrom.	17		17	N	14	N	24	N
Total Phosphorus			0.19	N			3.9	N

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC Limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated

The SVOCs detected in the four USZ wells and their maximum concentrations included: 1,2-dichlorobenzene (1,900 µg/L), 1,4-dichlorobenzene (290 µg/L), and 1,3-dichlorobenzene (53 µg/L). Bis(2-ethylhexyl)phthalate was detected below the quantitation limit in a sample from LSZ well 2-62A.

Concentrations of two SVOCs were above MCLs. This includes 1,2-dichlorobenzene and 1,4-dichlorobenzene in well 2-62B.

Concentrations of metals in groundwater samples from the wells at FTA2 were generally below MCLs. Three metals concentrations in the sample from LSZ well 2-63A appeared to exceed MCLs, including barium, chromium, and lead. However, this sample also contained total suspended solids at 1,900 mg/L, a much higher concentration than that observed in the other seven wells. It appears that the elevated metals concentrations in this sample are probably due to acid digestion of aquifer sediments containing natural metals.

The results of the analysis of groundwater samples from the eight wells suggest that the groundwater has not been substantially affected by operations at the former FTA2. The compounds detected in the wells are not generally associated with fuels, with the exception of the very low levels of benzene and toluene that were detected. These results are consistent with the analytical results for soils samples reported in the 1987 study (USACE, 1988), which found only traces of fuel-related nonhazardous alkanes. However, the presence of elevated concentrations on solvents in well 2-62B suggests that another source of hazardous materials may be nearby. The absence of similar compounds in the soil samples collected above the water table in this study suggests that the source of the contaminants is not in the areas where the eight wells were drilled.

The areal pattern of concentrations of organic compounds in groundwater in the vicinity of FTA2 is shown in Figures 5-5 and 5-6, which depict TCE and cis-1,2- dichloroethene, respectively. The maps indicate maximum concentrations at well 2-62B and suggest that concentrations decline to the north, west, and southwest. The contours suggest a source to the east, though other interpretations are possible, including a source to the northeast or to the north, between wells 2-62B and 2-65B.

Other evidence suggests that the source of contaminants could be to the east, in the vicinity of the culvert where the southwest-flowing tributary to Crutcho Creek emerges. The concentration of sulfate in well 2-62B is elevated compared to the other seven wells. This

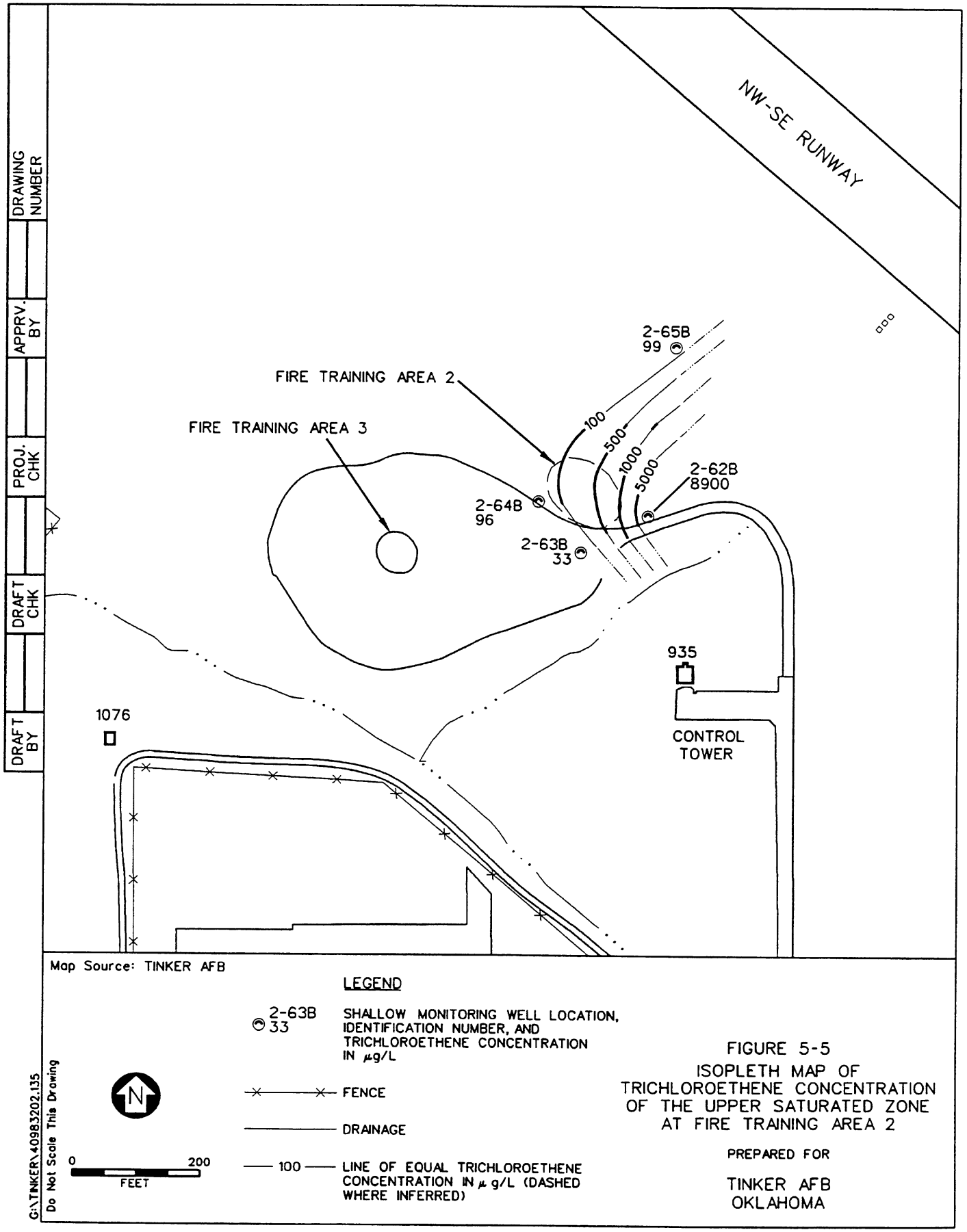

FIGURE 5-5
ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION OF THE UPPER SATURATED ZONE AT FIRE TRAINING AREA 2

PREPARED FOR

TINKER AFB
OKLAHOMA

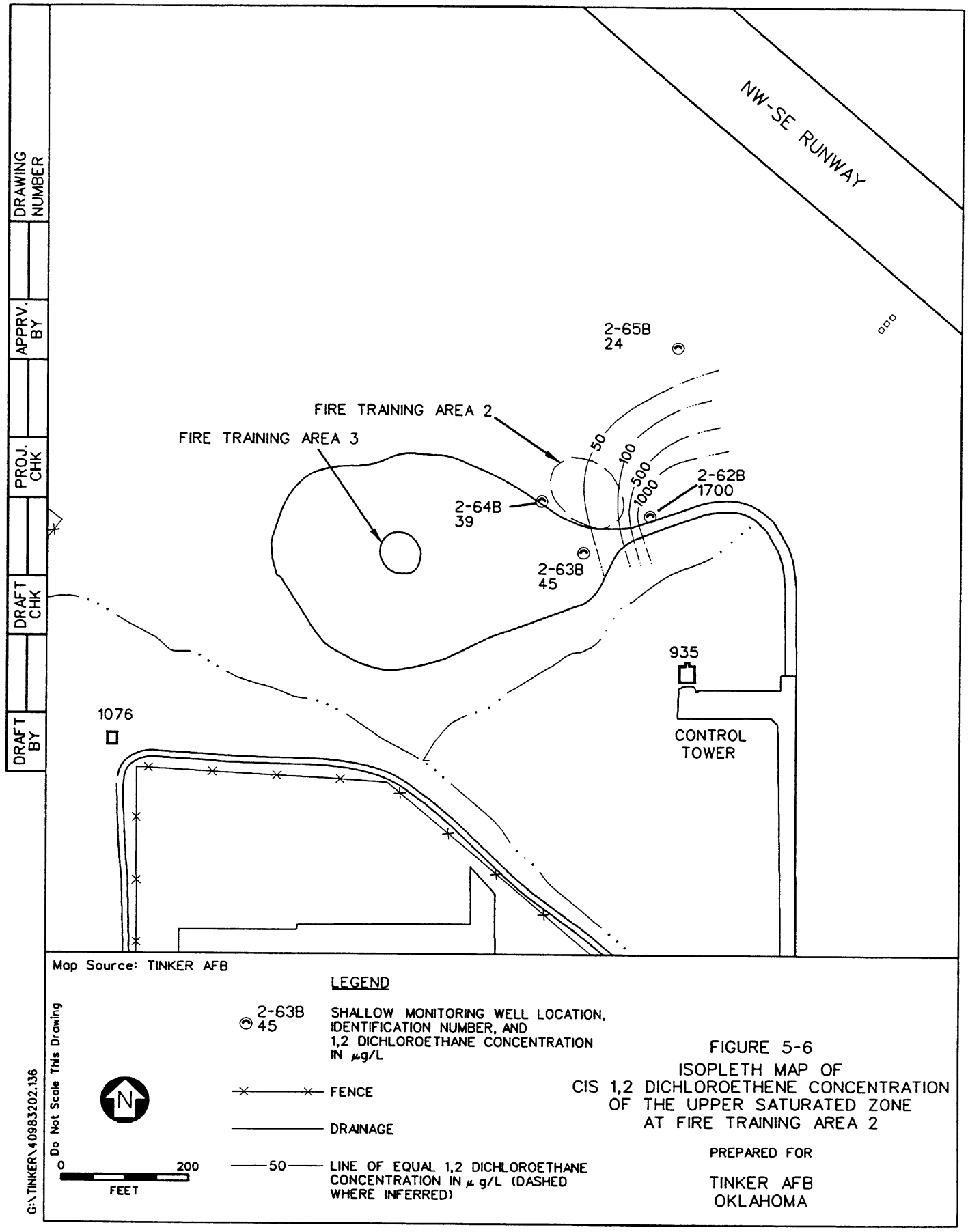

FIGURE 5-6
ISOPLETH MAP OF
CIS 1,2 DICHLOROETHENE CONCENTRATION
OF THE UPPER SATURATED ZONE
AT FIRE TRAINING AREA 2

PREPARED FOR

TINKER AFB
OKLAHOMA

elevation is consistent with downward leakage of surface water from the tributary, which would contact the gypsum or anhydrite beds near the base of the silty clay unit which overlies the USZ water table. Also, as noted previously, water levels in the USZ suggest a mounding of the water table in the vicinity of the tributary. Much of the protective upper silty clay unit has been removed by erosion by the tributary, which would facilitate loss of surface waters into the subsurface. If contaminated waters were present in this tributary, it appears possible that they could leak into the subsurface and contaminate the USZ. Potential sources of contaminants exist in the area drained by this tributary, including industrial facilities and ramp areas on the east side of the airfield.

6.0 Potential Receptors

A specific potential human and ecological receptor search has not been performed for FTA2. Data are available in the form of chemical analysis of soils and groundwater; current and future uses of these media; and ecologic and demographic information necessary to initiate a potential receptors search. The following sections describe the data available to begin identification of potential receptors.

6.1 Human Receptors

Tinker AFB is situated on a relatively flat expanse of grassland. Prior to the development of the Base, the area was characterized by large tracts of agricultural land. The Base currently occupies approximately 5,000 acres of semi-improved and unimproved grounds that are used for the airfield, golf course, housing area, offices, shops, and other uses characteristic of military installations.

The Garber-Wellington aquifer, which underlies Tinker AFB, is the single most important source of potable groundwater in the Oklahoma City area. The recharge area for the Garber-Wellington aquifer covers the eastern half of Oklahoma County, including Tinker AFB. Approximately 75 percent of the Base's water supply is obtained from production wells pumping from this aquifer. Industrial operations, individual homes, farm irrigation, and small communities not served by municipal distribution systems also depend on the Garber-Wellington aquifer. Communities, such as Oklahoma City, presently depending upon surface water supplies also maintain a well system drilled into this aquifer as a standby source of water in the event of drought. Lake Stanley Draper, a local surface water supply reservoir with a small portion of its drainage basin within the boundaries of Tinker AFB, serves a significant recreational function as well.

In 1989, approximately 26,000 military and civilian personnel worked at Tinker AFB. Of these, approximately 2,722 personnel occupied on-Base housing, which consisted of 530 family housing units and seven dormitories. At that time, 1,262 of these residents were children. Military personnel and their families who reside on Base represent the nearest receptors to releases from Tinker AFB.

The current land use at and near the Base is not expected to change because the facilities have decades of useful life remaining and the Base has an important and continuing mission.

However, other future land use scenarios and any human receptors associated with those scenarios may need to be considered.

6.2 Ecological Receptors

Tinker AFB lies within a grassland ecosystem, which is typically composed of grasses, forbes, and riparian (i.e., trees, shrubs, and vines associated with water courses) vegetation. This ecosystem has generally experienced fragmentation and disturbances as result of urbanization and industrialization at and near the Base. While no threatened or endangered plant species occur on the Base, the Oklahoma penstemon (*Penstemon oklahomensis*), identified as a rare plant under the Oklahoma Natural Heritage Inventory Program, thrives in several locations on Base. Tinker AFB policy considers rare species as if they were threatened or endangered and provides the same level of protection for these species.

In general, wildlife on the Base is typically tolerant of human activities and urban environments. No federal threatened or endangered species have been reported at the Base. However, one specie found on the Base, the Texas horned lizard (*Phrynosoma cornutum*), is a Federal Category 2 candidate specie and under review for consideration to be listed as threatened or endangered. Air Force policy (AFR 126-1) considers candidate species as threatened or endangered and provides the same level of protection.

The Oklahoma Department of Wildlife Conservation also lists several species within the state as Species of Special Concern. Information on these species suggests declining populations but information is inadequate to support listing, and additional monitoring of populations is needed to determine the species status. These species also receive protection by Tinker AFB as threatened or endangered species. Of these species, the Swainson's hawk (*Buteo swainsoni*) and the burrowing owl (*Athene cunicularia*) have been sighted on Tinker AFB. The Swainson hawk, a summer visitor and prairie/meadow inhabitant has been encountered Basewide. The burrowing owl has been known to inhabit the Air Field at the Base.

7.0 Action Levels

An "action level" is defined by EPA in proposed rule 40 CFR 264.521 (55 FR 30798; 7/27/90), "Corrective Action for Solid Waste Management Units (SWMU) at Hazardous Waste Management Facilities," as a health- and environment-based level, determined by EPA to be an indicator for protection of human health and the environment. In the preamble to this proposed rule, the focus of the RFI phase is defined as "characterizing the actual environmental problems at the facilities." As part of this characterization, a comparison of the contaminant concentrations to certain action levels should be made to determine if a significant release of hazardous constituents has occurred. This comparison is then used to determine if further action or corrective measures are required for a SWMU or an AOC. The preamble to the proposed rule states that the concept of action levels was introduced because of the need for "a trigger that will indicate the need for a Corrective Measures Study (CMS) and below which a CMS would not ordinarily be required" (55 FR 30798; 7/27/90). If constituent concentrations exceed certain action levels at a SWMU or an AOC, further action or a CMS may be warranted; if constituent concentrations are below action levels, a finding of no further action may be warranted. This chapter of the report presents the initial analytical data as compared to certain potential action levels.

Action levels are concentrations of constituents at or below which exposure to humans or the environment should not produce acute or chronic effects.

The action level information is presented in this chapter so that a constituent concentration at a sample location can be compared with its potential action level. Only constituents identified in the analysis are listed in the SWMU-8, FTA2 table. Table 7-1 shows the action levels for soil, water, and air as published in federal or state regulations, policies, guidance documents, or proposed rules.

The action levels listed in Table 7-1 are:

- ***SWMU CAL*** - The first set of action levels provided in the table are those taken from the proposed rule (40 CFR 264.521) and provided as Appendix A to the rule as "Examples of Concentrations Meeting Criteria for Action Levels." These levels are health-risk based and are provided as specific examples of levels below which corrective action would not be required.

Table 7-1

Action Level
SWMU-8, FTA2, Tinker AFB

(Page 1 of 3)

Parameters	SWMU CAL[a]			MCL[b]	USGS[c] Background	NAAQS[d]	2-62A 2 ft - 23 ft	2-63A 2 ft - 19 ft	2-64A 2 ft - 18 ft	2-65A 2.5 ft - 30 ft
	Soil (mg/kg)	Water (mg/L)	Air ($\mu g/m^3$)	Water (mg/L)	Soil (mg/kg)	Air ($\mu g/m^3$)	Range (mg/kg)	Range (mg/kg)	Range (mg/kg)	Range (mg/kg)
Organics										
1,1,1-Trichoroethane	7,000	3.0	1,000	0.2			.0031-.0067			
Bis(2-ethylhexyl)phthalate	50	0.003		0.006				1.7	1.3-2.1	
Butyl benzyl phthalate	20,000	7.0		0.1				0.57-0.63	0.56-0.96	
Di-n-butyl phthalate	8,000	4.0						0.34-1.7	0.061-1.4	
Inorganics										
Aluminum					89,000		750-15,000	900-12,000	1,800-16,000	1,500-19,000
Arsenic	80		7E-05	0.005	21		1.0-5.4	3	1.1-2.9	1.2-4.1
Barium	4000		0.4	2.0	6,400		32-630	20-900	56-690	27-150
Beryllium	0.2	8E-06	0.0004	0.004	3		0.94-1.3	1.4-1.9	1.4-1.9	0.88-2
Cadmium	40		0.0006	0.005	<2		0.57-0.69	0.71-0.90	0.55-1.1	0.74-1.1
Chromium				0.1	110		3-14	3.9-20	8.5-19	6.7-37
Copper				1.3[e]	59		1.1-22	9.9-18	8.5-22	5.2-22
Iron					58,000		2,400-14,000	2,800-17,000	3,700-13,000	4,600-22,000
Lead				0.015[e]	27	1.5[f]	1.5-7.1	0.88-13.0	1.5-7.8	2.9-9.1
Nickel	2,000	0.7		0.1	61		7.3-25	18-20	6.3-28	6-26
Silver	200				<2		0.41			
Zinc					79		3.1-29	4.7-27	7.8-33	5.9-35

Table 7-1

(Page 2 of 3)

Parameters	SWMU CAL[a]			MCL[b]	USGS[c] Background	Site Background[d]	NAAQS[e]	2-62A	2-62B	2-63A	2-63B	2-64A	2-64B	2-65A	2-65B
	Soil (mg/kg)	Water (mg/L)	Air ($\mu g/m^3$)	Water (mg/L)	Soil (mg/kg)	Soil (mg/kg)	Air ($\mu g/m^3$)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Organics															
1,1-Dichloroethene	10		0.03	0.007					0.0057-0.006						
1,1,2-Trichloroethane	100	0.006	0.6	0.005					0.0073-0.009						
1,2-Dichlorobenzene				0.6					1.7-1.9						
1,2-Dichloroethane	8.0		0.04	0.005					0.43-0.55						
1,2-Dichloropropane				0.005					0.007-0.0073						
1,3-Dichlorobenzene				0.6					0.046-0.053						
1,4-Dichlorobenzene				0.075					0.25-0.29						
Benzene				0.005					0.0054-0.0057						
Chlorobenzene	2,000	0.7	20	0.1					0.22-0.24						
Chloroform	100	0.006	0.04	0.1					0.0048						
Cis-1,2-dichloroethene	8.0		0.04	0.07					1.3-1.7		0.045		0.039		0.024
Tetrachloroethene	10	0.0007	1.0	0.005					0.0044-0.0047						
Toluene	20,000	10	7,000	1.0					0.0013-0.0015						
Trans-1,2-dichloroethene	8.0		0.04	0.1					0.13-0.14						
Trichloroethene	60			0.005					7.9-8.9		0.033		0.096		0.099
Inorganics															
Aluminum						19,000		1.5	5.1-8.2	32	5.9	2.9	1.4	2.8	0.95
Arsenic	8E+01		7E-05	0.05	21					0.018					
Barium	4,000		0.4	2.0	6,400			0.56	0.19-0.21	3.7	0.35	0.56	0.23		0.24
Cadmium	40		0.0006	0.005	<2					0.0066					

Table 7-1

(Page 3 of 3)

Parameters	SWMU CAL[a]			MCL[b]	USGS[c] Background	Site Background[d]	NAAQS[e]	2-62A	2-62B	2-63A	2-63B	2-64A	2-64B	2-65A	2-65B
	Soil (mg/kg)	Water (mg/L)	Air ($\mu g/m^3$)	Water (mg/L)	Soil (mg/kg)	Soil (mg/kg)	Air ($\mu g/m^3$)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Inorganics (Continued)															
Chromium				0.1	110			0.021	0.029-0.040	0.12	0.014	0.075		0.053	
Copper				1.3[e]	59				0.043-0.049	0.10					
Iron						22,000		1.1	5.5-11	57	13	4.8	2.0	4.3	1.1
Lead				0.015[e]	27		1.5[f]		0.0031-0.004	0.025		0.0042			
Nickel	2,000	0.7		0.1	61					0.079		0.067			
Nitrate/nitrite				10				5.3	2.7-2.9	3.3	3.8	1.1	3.8	0.78	2.6
Selenium				0.05	1.2						0.10				
Zinc					79				0.021-0.024	0.10	0.022	0.021		0.028	

[a]CAL - Corrective Action Levels.
[b]MCL - Maximum Contaminant Levels.
[c]USGS Background - United States Geological Survey Background.
[d]NAAQS - National Ambient Air Quality Standards.
[e]Action Level at the Tap.
[f]3-Month Average.

- ***Maximum Contaminant Levels (MCL)*** - These values are provided from 40 CFR Subpart G, Sections 141.60 through 0.63 as promulgated under the Safe Drinking Water Act. These levels are designated for water media only.

- ***USGS Background*** - These values are provided from the USGS report titled "Elemental Composition of Surficial Materials from Central Oklahoma" (USGS, 1991). These values represent the levels of metals which naturally occur in Central Oklahoma soils.

- ***Background*** - These levels are provided where background could be determined. Where available, background concentrations are listed for metals in soil samples taken on site, which were thought to be unaffected by releases from a unit.

- ***National Ambient Air Quality Standards (NAAQS)*** - These standards are published in 40 CFR Part 50 under the Clean Air Act and apply to point sources that emit a limited number of constituents to the air. The constituents regulated are nitrogen dioxide, sulphur dioxide, carbon monoxide, lead, ozone, and particulate matter. Currently, it is assumed that none of the SWMUs or AOCs emit these compounds in regulated quantities and no air samples have been taken which would allow for a valid comparison.

- ***Water Quality Standards (WQS)*** - The WQS are the standards for surface water quality as established by the State of Oklahoma. These standards apply to point source discharges to surface waters and have been listed for those units adjacent to surface water.

Table 7-1 also gives a brief comparative evaluation of the data collected and the related action levels. The data for each detected compound are compared with the appropriate action level in order to identify those constituents (compounds) with concentrations exceeding the action levels. This identification of the compounds above the action levels provides an indication of a potential environmental problem at a specific site. In addition, this information indicates whether there is a need for conducting a CMS so that a corrective action can be implemented/undertaken at the site.

For constituents that have a SWMU CAL and an MCL for water, the MCL will be used for the comparison. Also, constituents that do not have a USGS background value will be compared to the site background value if available.

The data included in Table 7-1 is representative of the data presented in Chapter 5.0. For each soil boring, a range was identified and used in the comparison to the action levels. For

the groundwater samples, the results for the most recent sampling event were included in Table 7-1.

None of the constituents detected in the soil exceed the action levels or the existing background concentrations. Organics that were detected in the groundwater at FTA2 above MCLs include 1,1,2-TCE, 1,2-dichloropropane, 1,2-dichloroethane, benzene, chlorobenzene, trans-1,2-dichloroethane, 1,2-dichlorobenzene, 1,4-dichlorobenzene, cis-1,2-dichloroethene, and TCE. Barium, cadmium, chromium, lead, and selenium were also detected above MCLs.

8.0 Summary and Conclusions

8.1 Summary

The RFI was conducted to determine if the soils and groundwater in the vicinity of FTA2 have been impacted by organic or metals contaminants as a result of former operations at FTA2. Eight monitoring wells were installed in the vicinity of FTA2, consisting of four well pairs. Four wells were installed in the USZ and four wells were installed in the LSZ. Soil samples were collected from the borings drilled for the LSZ wells. Soil samples were not collected from within the perimeter of the SWMU, since a previous investigation had a characterization of this potential source area.

The previous investigation was performed in 1987 by the USACE (1988) found that soils directly beneath the former facility were impacted by low levels of hazardous constituents, including acetone, methylene chloride, bis(2-ethylhexyl)phthalate, although in some cases it was uncertain if some of the samples had been contaminated by field or laboratory sample handling procedures, since several blanks also contained the constituents. Low levels (<70 mg/kg) of several fuel-related but nonhazardous organic compounds were also detected. Concentrations of metals were found to be within the range measured in background samples.

Undisturbed soil samples recovered from the borings made for the RFI monitoring wells indicate that approximately the upper 10 to 15 feet of the geologic section below the site consists of reddish silty clay or clayey silt of the Hennessey Group. Thin layers of anhydrite or gypsum occur near the base of this zone. Underlying the Hennessey are interbedded fine sandstone and siltstone of the Garber Sandstone. A layer of hard siltstone appears to be traceable across the area at a depth of approximately 40 to 45 feet.

The water levels in the USZ wells indicate that the water table is approximately 15 feet below grade. The LSZ wells are completed in the upper part of the Garber-Wellington aquifer and water levels are at a depth of approximately 60 feet below grade. Water levels in the USZ appear to be several feet lower than the bed of a nearby southwest-flowing tributary of Crutcho Creek.

The RFI results indicated that the soils and groundwater in the vicinity of the SWMU contain little if any trace of fuels-related contaminants. The soils samples contained low levels of VOCs. Only 1,1,1-TCA was detected above the method detection limits, at a maximum

concentration of 6.7 µg/kg, well below the CAL proposed in 40 CFR 264.521 (Chapter 7.0). In addition, three phthalate compounds were sporadically detected, all at concentrations below 3 mg/kg, and well below proposed CALs. Metals concentrations were within the range of background soil concentrations reported in a study of the four-county area around Tinker AFB by the USGS.

The groundwater samples collected from the eight monitoring wells indicate that the LSZ has not been affected. However, samples from the USZ indicate that the groundwater has been affected by several VOCs and SVOCs. The compounds do not appear to be related to operations at the former FTA2, as they are not fuel-related and were generally not detected in the soil samples analyzed in either this RFI or the 1987 investigation (USACE, 1988).

The samples from well 2-62B, located southeast of the FTA2, contained the greatest number and highest concentrations of constituents. The predominant constituents were TCE (maximum concentration 8,900 µg/L) and cis-1,2-dichloroethene (maximum 1,700 µg/L). Seven other volatiles were present at lesser concentrations. Three additional volatiles were detected below quantitation limits. In addition, three semivolatile compounds were detected in 2-62B, including 1,2-dichlorobenzene (1,900 µg/L), 1,4-dichlorobenzene (290 µg/L), and 1,3-dichlorobenzene (53 µg/L).

Volatile constituents detected above CALs in well 2-62B included 1,1,2-TCA and tetrachloroethene. Other compounds, for which no CAL is available, were present in well 2-62B at concentrations which exceeded MCLs, including TCE, cis-1,2-dichloroethene, 1,2-dichloropropane, 1,2-DCA, benzene, and trans-1,2-DCE. Concentrations of two SVOCs were above MCLs. This includes 1,2-dichlorobenzene and 1,4- dichlorobenzene in well 2-62B.

TCE was detected in USZ wells 2-63B, 2-64B, and 2-65B at concentrations which also exceeded CALs.

The source of the contaminants in the USZ in this area does not appear to be FTA2, since the compounds in the groundwater are different from those which have been identified in the soils. Geotechnical analyses of a soil sample from this area, as discussed in Section 5.4.2, suggests that in general, near surface soils are fine grained (primarily silt and clay) with relatively low vertical permeability. The low permeability would tend to limit infiltration of surface water, which inhibits transport of contaminants to the subsurface.

There are no obvious upgradient sources for the solvent materials detected in the groundwater in the USZ in this area. The water levels in the USZ in the vicinity of FTA2 suggest that locally the water table gradient is significantly reduced compared to the Base-wide gradient. The gradient is relatively flat in the vicinity of wells 2-62B, 2-63B, and 2-64B. This could indicate the presents of a groundwater mound, suggesting the possibility of a local source of recharge to the aquifer. The most likely source of recharge in this area would be the small southwest-flowing tributary to Crutcho Creek located south of the FTA2.

Other evidence suggests that the source of contaminants could be to the east, in the vicinity of the culvert where the southwest-flowing tributary to Crutcho Creek emerges (Figure 3-1). The concentration of sulfate in well 2-62B is elevated compared to the other seven wells. This elevation is consistent with downward leakage of surface water from the tributary, which would contact the gypsum or anhydrite beds near the base of the silty clay unit.

Much of the protective upper silty clay unit has been removed by erosion by the tributary, which would facilitate loss of surface waters into the subsurface. If contaminated waters were present in this tributary, it appears possible that they could leak into the subsurface and contaminate the USZ. Potential sources of contaminants exist in the area drained by this tributary, including industrial facilities and ramp areas on the east side of the airfield.

8.2 Conclusions

Data collected for this RFI suggest that FTA2 is not the source of the hazardous constituents detected in samples from the monitoring wells installed in this area. There do not appear to be any significant ongoing releases from the FTA2. The specific VOCs and SVOCs detected in the groundwater samples suggest that these materials are more likely to have originated from other industrial processes, such as degreasing operations, rather than from activities in which only hydrocarbon fuels were involved. No such industrial operations exist or are known to have previously existed in the immediate area surrounding FTA2.

The gradient of the water table and the pattern of contaminant concentrations in the area around FTA2 suggests that the source of the contaminants would be northeast or east of well 2-62B. The only nearby potential source appears to be the southeast-flowing tributary which passes to the south of the SWMU and drains industrial areas located upstream. This tributary emerges from a culvert that passes beneath the airfield runways located to the east. Although the data are insufficient to definitely identify this area as the source of the contaminants, several factors suggest that this is a viable possibility:

- The water level in well 2-62B appears to be below the channel of the tributary.
- The anomalously high sulfate concentration in a groundwater sample from well 2-62B suggests leaching of gypsum or anhydrite, which was identified near the base of the silt/clay unit in soil samples from several of these wells.
- The water table appears to be anomalously flat in this area, suggesting a local source of recharge may exist.
- Much of the protective upper silt/clay unit has been removed by erosion of the tributary.
- Potential sources of the contaminants detected in the USZ in this area exist in upstream areas drained by this tributary.

Recommendations for additional work to determine the source of the contaminants detected in groundwater in the USZ in this area are discussed in Chapter 9.0.

9.0 Recommendations

As presented in Chapter 8.0, the preponderance of data collected from the RFI at FTA2, indicates that it is not likely to be the source of the hazardous constituents detected in the groundwater. Groundwater samples in the USZ have detected several VOCs and SVOCs. Predominant constituents included TCE and cis-1,2-dichloroethene. Seven other volatiles were present at lesser concentrations. None of these compounds appear to be directly related to the operations at the former FTA2. Only traces of fuel-related contaminants, known to be associated with the waste handling activities and operating practices at this SWMU were found in the soils and the groundwater (USZ only). Groundwater samples from well 2-62B, located southeast of the SWMU, contained the greatest number and highest concentrations of these constituents. The source of these constituents is not evident from the information obtained during this RFI.

The constituents detected in the dissolved phase at the former FTA2 are among the chemical constituents known as dense nonaqueous-phase liquids (DNAPL). Recently, EPA has acknowledged that DNAPL contaminants present unique site characterization and remediation problems. Adequate site characterization, while difficult when dealing with constituents, is paramount for making sound remediation decisions.

As previously discussed in Chapter 8.0, there are no obvious apparent sources for the subject dissolved constituents detected in the USZ that are currently visible at this SWMU nor evident in the past, based on a review of aerial photographs of the area. One potential source that is suspected is the small tributary to Crutcho Creek, located south of the SWMU. This tributary, which emerges from a culvert in the vicinity of this SWMU, drains towards the southwest into Crutcho Creek, and may provide recharge to the USZ, could be a secondary migration pathway, carrying these constituents from an upstream, unknown remote source. Evidence in the groundwater data also suggest that another source unrelated to FTA2 could be located upgradient of well 2-62B.

Based on the data and results from this RFI, further investigation is warranted in order to identify, if practicable, the source(s) of the constituents, previously described, which have been detected in the USZ. It is recommended that a source assessment be conducted for the purpose of identifying whether or not another source exists in the vicinity of FTA2. The approach of the proposed assessment would consist of the following:

- Review of plant records and/or interviews with Base personnel familiar with historical operations in this area

- Review of aerial photographs of the area around FTA2 for the possible detection of previously unidentified activities in the vicinity immediately upgradient

- The collection of groundwater samples from a minimum of four and a maximum of six locations using either temporary well points or a best available technology (BAT) system sampling devices driven using a truck mounted cone penetrometer testing (CPT) system

- Installation of monitoring well(s), which will be screened in the USZ at a location selected based on the results of the groundwater samples provided from the use of the CPT system.

Site-specific soil background samples were not collected, nor were the soil background values available for inclusion in this Phase I RFI report. Therefore, it is recommended that site-specific soil samples from uncontaminated areas be collected for analysis during the Phase II RFI field work. This additional information along with the USGS background values should be used in the Phase II report to distinguish site-related from background concentrations in a statistically significant manner. During the development of the Phase II RFI work plan, the number of background samples to be collected, the location of the soil borings, and the soil analysis to be performed on the samples should be determined for EPA approval.

A review of plant records and interviews with Base personnel familiar with historical operations in this area can be conducted to help ascertain whether an unidentified source may exist in this vicinity. If warranted, the locations of the CPT groundwater samples may be adjusted in the field accordingly from the information obtained. Similarly, aerial photographs of the area around FTA2 can be reviewed for previously unidentified activities in the vicinity immediately upgradient to well 2-62B.

The LSZ groundwater was found to be clean during the investigation, indicating that the vertical extent of groundwater contamination is known. However, the lateral extent of contamination was not determined in the USZ of the groundwater. It is recommended that the location, number, and depth of soil borings/monitoring wells be determined during the development of the Phase II RFI work plan.

With the objective of further defining the source and/or extent of the impacts to the USZ, additional groundwater samples should be collected cost effectively from four to six locations.

These locations will be selected during the development of a Phase II work plan based on the two potential source areas, identified in Chapter 8.0. Each groundwater sample can be screened for volatile organics using a field gas chromatograph (e.g., Foxboro Organic Vapor Analyzer) to provide qualitative "real-time" results. This would allow for adjustments to the number or locations of groundwater collection points to be made in the field. Sufficient sample volumes may also be collected from each location to be analyzed at an off-site laboratory for more quantitative results. Recommended analyses would include VOCs, SVOCs, TOC, and TPH.

Using this approach, the location of additional permanent monitoring (USZ) well(s) can be selected, based on the results of the assessment described above, to further delineate the extent of impacts in this area or assess the probable source area for the contaminants detected.

The number, location, and analysis to be performed on soil samples should be determined during the development of a Phase II RFI work plan for the site. Additional soil samples will be collected if needed.

10.0 References

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APPENDIX A
BORING LOGS/WELL CONSTRUCTION DIAGRAMS

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

SOIL BORING 2-65P

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF FIRE TRAINING AREA
SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 100.0
Logged By: K. KIRSCHENMANN
Date Started: 11/2/93
Drilled By: P. GUERREIN
GEOTECHNOLOGY, INC.
Date Completed: 11/3/93
Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER AND MUD ROTARY WITH 3-7/8" BIT
Sampling Method:

Notes: STRATIGRAPHIC TEST USED FOR GEOPHYSICAL LOGGING

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) 10 20 30 40	SAMPLE TYPE SAMPLE NO.	IN. DRIVEN IN. RECOVERED	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY CLAY					cl		5
– stiff; hard, pulldown pressure approximately 300 psi				0			10
							15
				0			20
– sandy and gravelly zone							25
				0			30
							35
				0			40

DRAFT BY	RPS	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A27 Sheet 1 of 3
	11/24/93								

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

SOIL BORING 2-65P

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF FIRE TRAINING AREA
SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 100.0
Logged By: K. KIRSCHENMANN
Date Started: 11/2/93
Drilled By: P. GUERREIN
GEOTECHNOLOGY, INC.
Date Completed: 11/3/93
Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER AND MUD ROTARY WITH 3-7/8" BIT
Sampling Method:

Notes: STRATIGRAPHIC TEST USED FOR GEOPHYSICAL LOGGING

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) 10 20 30 40	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
							45
SILTSTONE AND CLAY - alternating harder layers				0	ml-cl		50
- very hard							55
				0			60
- softer							65
				0			70
							75
				0			80

DRAFT BY	RPS 11/24/93	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A27 Sheet 2 of 3

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

SOIL BORING 2-65P

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF FIRE TRAINING AREA
SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 100.0
Logged By: K. KIRSCHENMANN
Date Started: 11/2/93
Drilled By: P. GUERREIN
GEOTECHNOLOGY, INC.
Date Completed: 11/3/93
Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER AND MUD ROTARY WITH 3-7/8" BIT
Sampling Method:

Notes: STRATIGRAPHIC TEST USED FOR GEOPHYSICAL LOGGING

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) 10 20 30 40	SAMPLE TYPE SAMPLE NO.	IN. DRIVEN IN. RECOVERED	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY CLAY					cl		85
– very hard				0			90
							95
							100
TOTAL DEPTH = 100.0 FEET							105
							110
							115
							120

DRAFT BY	RPS 11/24/93	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A27 Sheet 3 of 3

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

MONITORING WELL 2-62A

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST SIDE OF FIRE TRAINING AREA 2
SURFACE ELEV.(FT): 1246.213
TOTAL DEPTH(FT.): 70
Logged By: M. WILSON
Date Started: 11/22/93
Drilled By: D. MEYER
Date Completed: 11/29/93
GEOTECHNOLOGY. INC.
Drill Rig Type: CME-75
Drilling Method: 8" AND 12" HOLLOW STEM AUGERS AND MUD ROTORY WITH 5-5/8" TRICONE ROCK BIT
Sampling Method: 3"x5' CONTINUOUS SAMPLER

Notes: N 150447.890, E 2182152.166

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 — Depth(ft.): 25 — Type: Carbon Steel
   Centralizers-Type: S.Steel — Depths(ft.): 13
2. Riser Pipe-I.D.(in.): 2 — Depth(ft.): 53.8 — Type: S.Steel
   Centralizers-Type: S.Steel — Depths(ft.): 24, 53
3. Screen Dia.(in.): 2 — Type: S.Steel Wire Wound
   Depth Interval(ft.): 53.8-63.7 — Slot Size(in.): .010
   Centralizers-Type: — Depths(ft.):
4. Filter Pack Type: Silica Sand — Depth Interval(ft.): 52.0-65.0
   Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	FID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAYEY SILT - slightly plastic; stiff; moist; red (2.5YR-4/8); roots and gravel at surface; trace caliche nodules; many black carbon imprint stains		36		ml		1.0
- hard at 1'	A 1561	36 / 60	0.0			
- many caliche nodules	A 1562		0.0			5
- very hard; dry	J 5428	60 / 24				
	A 1563	18 / 36				10
- 2 inch layer of anhydrite/gypsum; light gray (5YR-7/1)		36 / 60				
SANDY SILT - 30% very fine grained sand, 70% silt; stiff; compact; becomimg more sandy				ml		15
SILTY SAND - 30% silt, 70% very fine grained sand; compact; moist; red (2.5YR-4/8); few layers (.5 inch) of moderately well cemented sand with trace of light gray laminations	A 1564	60 / 60	2.5 / 2.5	sm		
SAND - very fine to fine grained; poorly graded; compact; moist; red (2.5YR-4/8); gradational contact; sand forms thin layers				sp		20
- saturated	A 1565	60 / 60	40 / 160			
SANDY SILT - 20% very fine grained sand, 80% silt; hard; dry; red (2.5YR-4/8); sharp contact; many thin layers of light gray clay				ml		25.0
SILTY SAND - 40% silt, 60% very fine grained sand; hard; compact; wet; red (2.5YR-4/8); sharp contact; thin layers of light gray clay		60	7	sm		25
- small patches of black stains		24 / 24	6			30
SAND - poorly graded; <5% fines				sp		35
						40

GEOPHYSICAL LOG (GAMMA) 10 20 30 40

12" Steel Manhole Cover
Concrete Flush Completion
cement/ bentonite grout
8 inch carbon steel casing
stainless steel centralizer
12 inch borehole
stainless steel centralizer
riser pipe (threaded)
cement/ bentonite grout
6 inch borehole

DRAFT BY	RPS	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A57 Sheet 1 of 2
	1/12/94								

Client: TINKER AFB
Project Name: TINKER 5001

Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

MONITORING WELL 2-62A

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST SIDE OF FIRE TRAINING AREA 2
SURFACE ELEV.(FT): 1246.213
TOTAL DEPTH(FT.): 70
Logged By: M. WILSON
Date Started: 11/22/93
Drilled By: D. MEYER GEOTECHNOLOGY. INC.
Date Completed: 11/29/93
Drill Rig Type: CME-75
Drilling Method: 8" AND 12" HOLLOW STEM AUGERS AND MUD ROTORY WITH 5-5/8" TRICONE ROCK BIT
Sampling Method: 3"x5' CONTINUOUS SAMPLER

Notes: N 150447.890, E 2182152.166

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL

1. Surf Casing-I.D.(in.): 8
   Depth(ft.): 25 Type: Carbon Steel
   Centralizers-Type: S.Steel
   Depths(ft.): 13
2. Riser Pipe-I.D.(in.): 2
   Depth(ft.): 53.8 Type: S.Steel
   Centralizers-Type: S.Steel
   Depths(ft.): 24, 53
3. Screen Dia.(in.): 2
   Type: S.Steel Wire Wound
   Depth Interval(ft.): 53.8-63.7
   Slot Size(in.): .010
   Centralizers-Type:
   Depths(ft.):
4. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 52.0-65.0
   Conc. Pad Size: 4'x4'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) 10 20 30 40	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	FID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILT - hard; dense					ml		45
SAND - thin layers of silt (46'-54'); clean sand (54'-63')					sp		46.5, 50, 52.0, 53.8, 55, 60
SILT - hard; dense					ml		63.7, 64.0, 65.0, 65, 70
TOTAL DEPTH = 70.0 FEET							75, 77.0, 80

3/8 inch bentonite chips
stainless steel centralizer
filter pack 20 mesh
well screen
s.stl cap
3/8 inch bentonite chips

DRAFT BY	RPS	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A57 Sheet 2 of 2
	1/12/94								

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

MONITORING WELL 2-63A

DRILLING AND SAMPLING INFORMATION

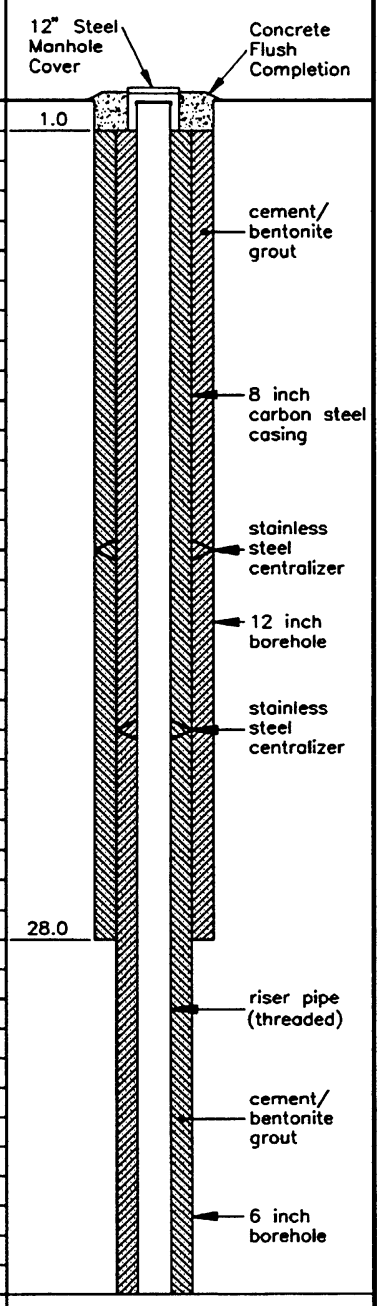
Boring Location: EAST SIDE OF FIRE TRAINING AREA 2
SURFACE ELEV.(FT): 1243.387
TOTAL DEPTH(FT.): 67
Logged By: M. WILSON
Date Started: 11/19/93
Drilled By: D. MEYER
Date Completed: 11/23/93
GEOTECHNOLOGY. INC.
Drill Rig Type: CME-75
Drilling Method: 8" AND 12" HOLLOW STEM AUGERS AND MUD ROTORY WITH 5-5/8" TRICONE ROCK BIT
Sampling Method: 3"x5' CONTINUOUS SAMPLER AND 1-1/2"x2' SPLIT SPOON
Notes: N 150389.964, E 2182043.019

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 — Depth(ft.): 28 — Type: Carbon Steel
   Centralizers-Type: S.Steel — Depths(ft.): 15
2. Riser Pipe-I.D.(in.): 2 — Depth(ft.): 53 — Type: S.Steel
   Centralizers-Type: S.Steel — Depths(ft.): 21, 51
3. Screen Dia.(in.): 2 — Type: S.Steel Wire Wound
   Depth Interval(ft.): 53.0-63.0 — Slot Size(in.): .010
   Centralizers-Type: — Depths(ft.):
4. Filter Pack Type: Silica Sand — Depth Interval(ft.): 51-64
   Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	FID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY - slightly plastic; firm; moist; dark grayish brown (10YR-3/2); black carbon imprints; small rootlets; small caliche nodules; gravel fill (0.0'-0.5')	A 1555	36/36	0.0	cl		1.0
- gradational contact						
CLAYEY SILT - moderately plastic; firm; moist; red (2.5YR-4/8); black carbon imprint stains		60		ml		5
- hard; dry; brittle	A 1556 2-63A	60/24	0.0			
- very hard						10
- 6" anhydrite/gypsum layer; light gray (5YR-7/1)	A 1557	24/36	0.0			
SILTY SAND - 20% silt, 80% very fine to fine grained sand; hard; compact; moist; sand forms thin (1-2mm) layers		36/60		sm		15
- trace of thin laminations of anhydrite/gypsum; light gray (5YR-7/1)	A 1558		0.0			
SAND - very fine to fine grained; <10% silt; mostly clean; poorly graded	A 1559	60/60	0.0	sp		20
- saturated						
- some thin layers of sand; lighter red (2.5YR-5/6); poorly cemented		60/36				25
SILT - slightly plastic; hard; dry; red (2.5YR-4/8); sharp contact		36/36		ml		28.0
SAND - poorly graded; saturated				sp		30
- silt layer						35
SILT - hard; dense; several thin layers of sandy silt				ml		40

GEOPHYSICAL LOG (GAMMA) 10 20 30 40



DRAFT BY	RPS 1/13/94	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A58 Sheet 1 of 2

Client: TINKER AFB
Project Location: TINKER AFB, OKLAHOMA
Project Name: TINKER 5001
Project Number: 409832

MONITORING WELL 2-63A

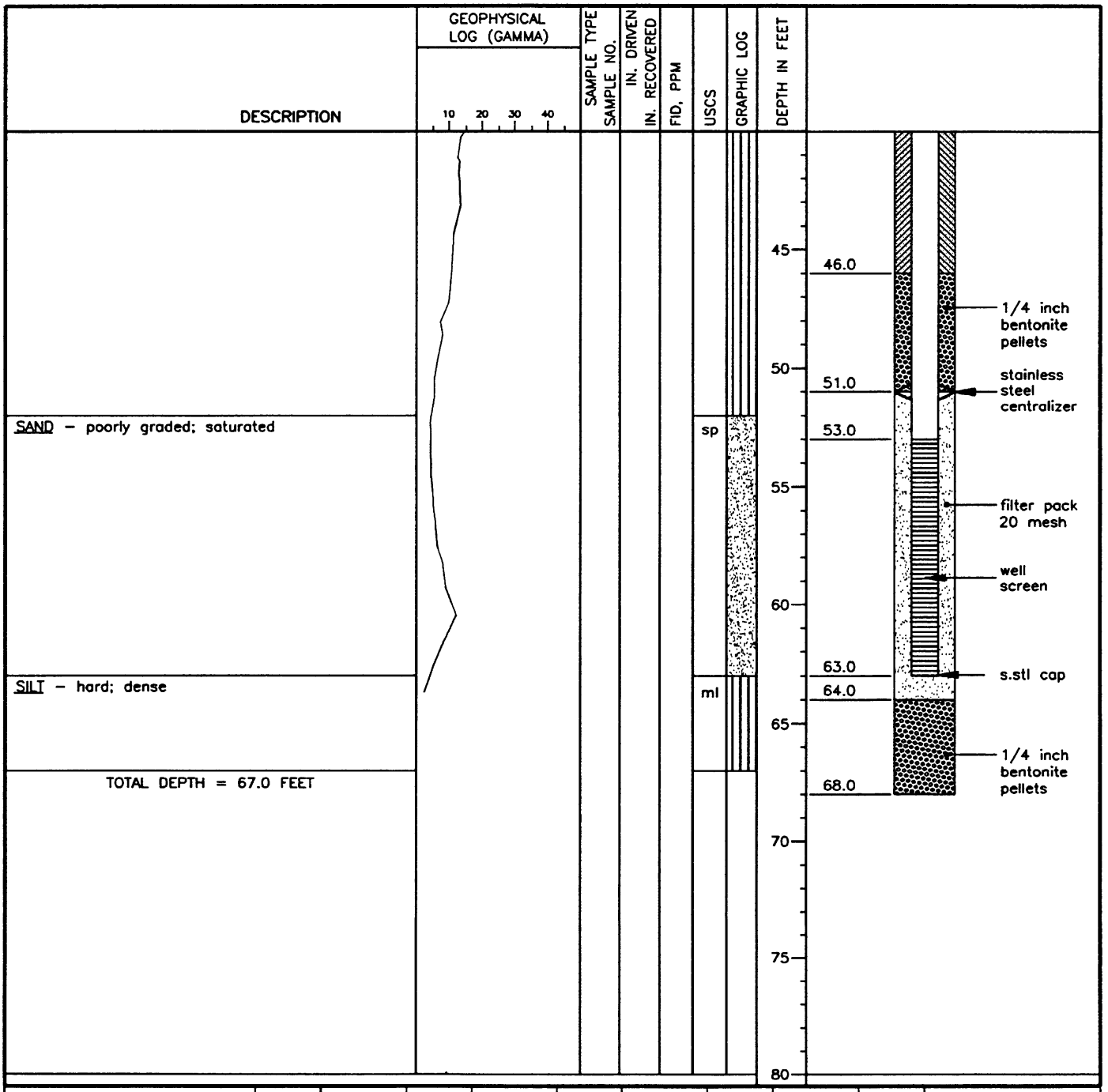
DRILLING AND SAMPLING INFORMATION

Boring Location: EAST SIDE OF FIRE TRAINING AREA 2
SURFACE ELEV.(FT): 1243.387
TOTAL DEPTH(FT.): 67
Logged By: M. WILSON
Date Started: 11/19/93
Drilled By: D. MEYER
Date Completed: 11/23/93
GEOTECHNOLOGY. INC.
Drill Rig Type: CME-75
Drilling Method: 8" AND 12" HOLLOW STEM AUGERS AND MUD ROTORY WITH 5-5/8" TRICONE ROCK BIT
Sampling Method: 3"x5' CONTINUOUS SAMPLER AND 1-1/2"x2' SPLIT SPOON
Notes: N 150389.964, E 2182043.019

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 — Depth(ft.): 28 — Type: Carbon Steel
   Centralizers-Type: S.Steel — Depths(ft.): 15
2. Riser Pipe-I.D.(in.): 2 — Depth(ft.): 53 — Type: S.Steel
   Centralizers-Type: S.Steel — Depths(ft.): 21, 51
3. Screen Dia.(in.): 2 — Type: S.Steel Wire Wound
   Depth Interval(ft.): 53.0-63.0 — Slot Size(in.): .010
   Centralizers-Type: — Depths(ft.):
4. Filter Pack Type: Silica Sand — Depth Interval(ft.): 51-64
   Conc. Pad Size: 4'x4'x6"

DESCRIPTION	USCS
SAND - poorly graded; saturated	sp
SILT - hard; dense	ml
TOTAL DEPTH = 67.0 FEET	



DRAFT BY	RPS	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A58 Sheet 2 of 2
	1/13/94								

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

MONITORING WELL 2-64A

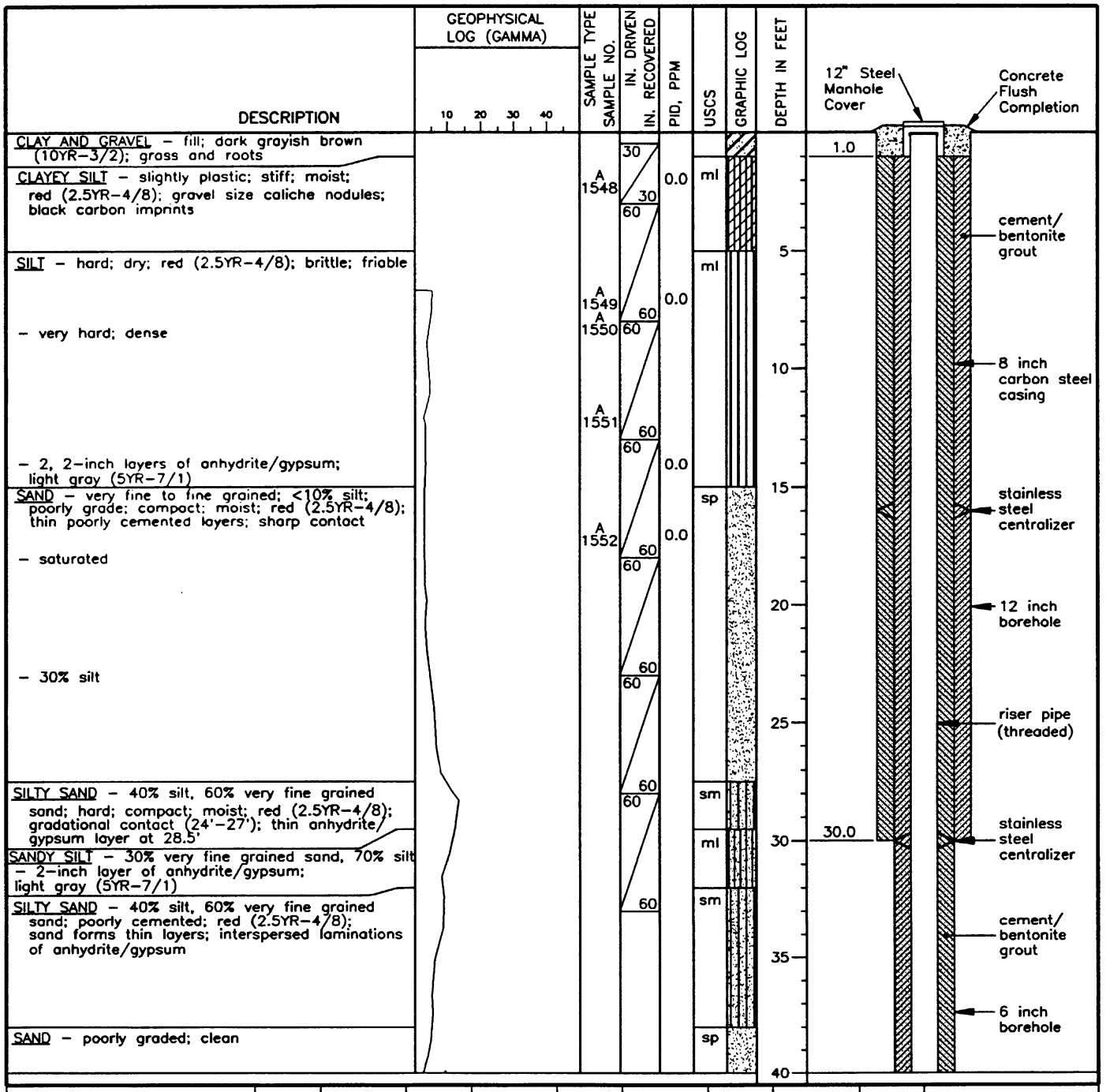
DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH SIDE OF FIRE TRAINING AREA 2
SURFACE ELEV.(FT): 1246.052
TOTAL DEPTH(FT.): 75
Logged By: M. WILSON
Date Started: 11/18/93
Drilled By: D. MEYER GEOTECHNOLOGY. INC.
Date Completed: 11/22/93
Drill Rig Type: CME-75
Drilling Method: 8" AND 12" HOLLOW STEM AUGERS AND MUD ROTORY WITH 5-5/8" TRICONE ROCK BIT
Sampling Method: 3"x5' CONTINUOUS SAMPLER

Notes: N 150470.205, E 2181959.365

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 Depth(ft.): 30 Type: Carbon Steel
   Centralizers-Type: S.Steel Depths(ft.): 16
2. Riser Pipe-I.D.(in.): 2 Depth(ft.): 56 Type: S.Steel
   Centralizers-Type: S.Steel Depths(ft.): 30, 54
3. Screen Dia.(in.): 2 Type: S.Steel Wire Wound
   Depth Interval(ft.): 56-66 Slot Size(in.): .010
   Centralizers-Type: Depths(ft.):
4. Filter Pock Type: Silica Sand Depth Interval(ft.): 54.5-67.0
   Conc. Pad Size: 4'x4'x6"



	DRAFT BY	RPS 1/15/94	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A59 Sheet 1 of 2

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

MONITORING WELL 2-64A

DRILLING AND SAMPLING INFORMATION

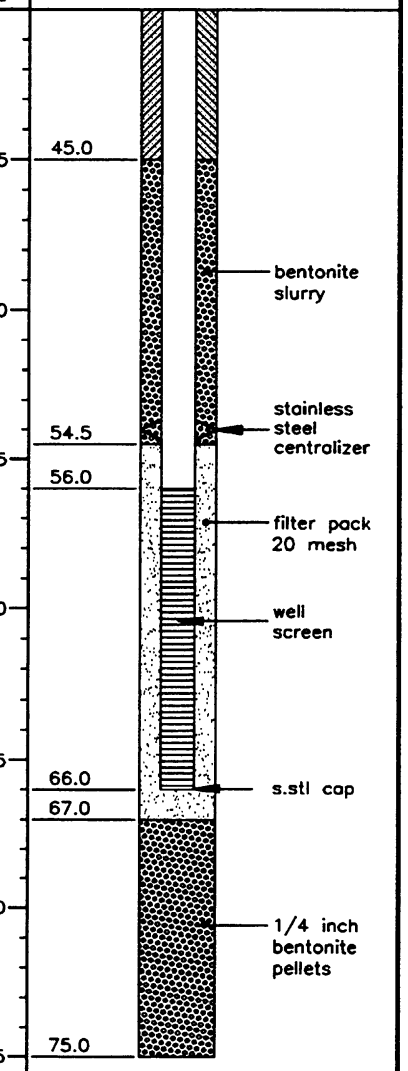
Boring Location: NORTH SIDE OF FIRE TRAINING AREA 2
SURFACE ELEV.(FT): 1246.052
TOTAL DEPTH(FT.): 75
Logged By: M. WILSON
Date Started: 11/18/93
Drilled By: D. MEYER
Date Completed: 11/22/93
GEOTECHNOLOGY. INC.
Drill Rig Type: CME-75
Drilling Method: 8" AND 12" HOLLOW STEM AUGERS AND MUD ROTORY WITH 5-5/8" TRICONE ROCK BIT
Sampling Method: 3"x5' CONTINUOUS SAMPLER

Notes: N 150470.205, E 2181959.365

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8
   Depth(ft.): 30 Type: Carbon Steel
   Centralizers-Type: S.Steel
   Depths(ft.): 16
2. Riser Pipe-I.D.(in.): 2
   Depth(ft.): 56 Type: S.Steel
   Centralizers-Type: S.Steel
   Depths(ft.): 30, 54
3. Screen Dia.(in.): 2
   Type: S.Steel Wire Wound
   Depth Interval(ft.): 56-66
   Slot Size(in.): .010
   Centralizers-Type:
   Depths(ft.):
4. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 54.5-67.0
   Conc. Pad Size: 4'x4'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) 10 20 30 40	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILT - hard; dense; several thin layers of sand					ml		45
SAND - poorly graded; clean					sp		55
SILT - hard; dense					ml		65
TOTAL DEPTH = 75.0 FEET							75



	DRAFT BY	RPS 1/15/94	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A59 Sheet 2 of 2

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

MONITORING WELL 2-65A

DRILLING AND SAMPLING INFORMATION

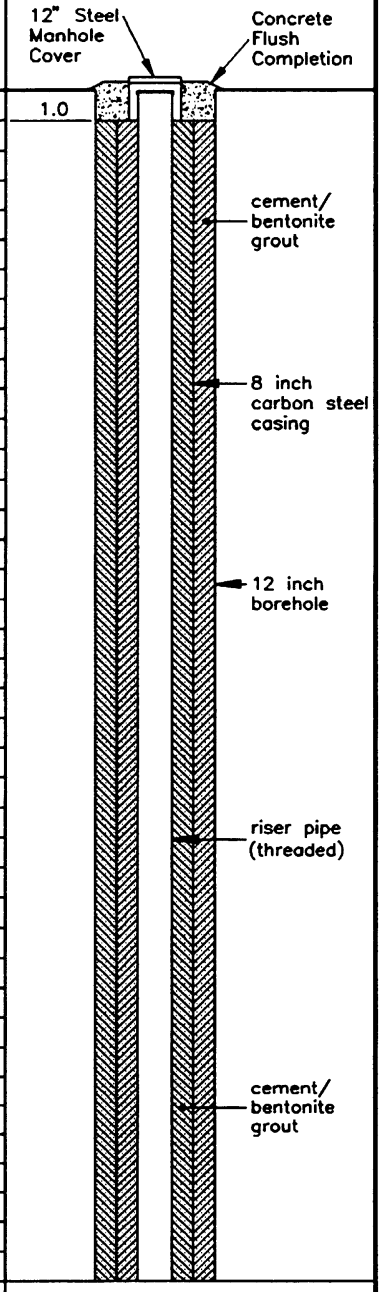
Boring Location: NORTHEAST OF FIRE TRAINING AREA 2
SURFACE ELEV.(FT): 1250.976
TOTAL DEPTH(FT.): 79
Logged By: M. WILSON
Date Started: 11/15/93
Drilled By: D. MEYER GEOTECHNOLOGY. INC.
Date Completed: 11/19/93
Drill Rig Type: CME-75
Drilling Method: 8" AND 12" HOLLOW STEM AUGERS

Sampling Method: 3"x5' CONTINUOUS SAMPLER AND 1-1/2"x2' SPLIT SPOON
Notes: N 150698.281, E 2182189.884

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8
   Depth(ft.): 55 Type: Carbon Steel
   Centralizers-Type:
   Depths(ft.):
2. Riser Pipe-I.D.(in.): 2
   Depth(ft.): 66 Type: S.Steel
   Centralizers-Type: S.Steel
   Depths(ft.): 61
3. Screen Dia.(in.): 2
   Type: S.Steel Wire Wound
   Depth Interval(ft.): 66-76
   Slot Size(in.): .010
   Centralizers-Type:
   Depths(ft.):
4. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 64-77
   Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	FID, PPM	USCS	DEPTH IN FEET
CLAY - moderately plastic; stiff; moist; grayish brown (5YR-4/2); grass and roots		48		cl	1.0
- gradational contact	A 1540	48	0.0	cl	
GRAVELLY CLAY - slightly plastic; 20% granule size gravel; firm; moist; red (2.5YR-4/8); rootlets; black carbon imprint - hard; dry; brittle - 50% light red caliche - 10% gravel		60			5
- 30%-40% sand	A 1541	60	0.0		
CLAYEY SILT - nonplastic; very hard; brittle; dry; red (2.5YR-4/8); sharp contact		60		ml	10
- dense; compact	A 1542	60	0.0		
SANDY SILT - 25% very fine grained sand; 75% silt; loose; dry; red (2.5YR-4/8); thin silt layers (0.1-0.5" thick)		60		ml	15
	A 1543	36	0.0		
- few thin seams of very fine grained sand; gray		30			20
- hard	A 1544	30			
SILTY SAND - 30% silt, 70% very fine grained sand; compact; stiff; dry; red (2.5YR-4/8); hard to drill				sm	25
	A 1545	9 9			
- saturated	A 1546				30
SAND - fine grained; <10% fines; poorly graded; compact; saturated; red (2.5YR-4/8)		24		sp	
		24			35
SILTY SAND - 30% silt, 70% very fine grained sand; compact; saturated; red (2.5YR-4/8)		60		sm	
CLAYEY GRAVELLY SAND - 30% clay, 40% gravel, 30% fine grained sand; loose; saturated; red (2.5YR-4/8)				sc-gc	
SAND - fine grained; poorly graded; compact; saturated; red (2.5YR-4/8)		60		sp	40



	DRAFT BY	RPS 1/15/94	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A60 Sheet 1 of 2

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

MONITORING WELL 2-65A

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTHEAST OF FIRE TRAINING AREA 2
SURFACE ELEV.(FT): 1250.976
TOTAL DEPTH(FT.): 79
Logged By: M. WILSON
Date Started: 11/15/93
Drilled By: D. MEYER
Date Completed: 11/19/93
GEOTECHNOLOGY. INC.
Drill Rig Type: CME-75
Drilling Method: 8" AND 12" HOLLOW STEM AUGERS

Sampling Method: 3"x5' CONTINUOUS SAMPLER AND 1-1/2"x2' SPLIT SPOON
Notes: N 150698.281, E 2182189.884

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8
   Depth(ft.): 55 Type: Carbon Steel
   Centralizers-Type:
   Depths(ft.):
2. Riser Pipe-I.D.(in.): 2
   Depth(ft.): 66 Type: S.Steel
   Centralizers-Type: S.Steel
   Depths(ft.): 61
3. Screen Dia.(in.): 2
   Type: S.Steel Wire Wound
   Depth Interval(ft.): 66-76
   Slot Size(in.): .010
   Centralizers-Type:
   Depths(ft.):
4. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 64-77
   Conc. Pad Size: 4'x4'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) 10 20 30 40	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	FID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
- hard - softer - hard							45, 50, 55
SANDY CLAY - 10%-20% fine grained sand; dark red (2.5YR-4/8)			36		cl		55.0
SAND - very fine to fine grained; gray; sharp contact			36		sp		59.0
CLAYEY SAND - 60%-70% fine grained sand; dark red (2.5YR-4/8); sharp contact			60		sc		60, 64.0
			60				65, 66.0
			60				70
			60				75, 76.0
			60				77.0, 79.0
TOTAL DEPTH = 79.0 FEET							80

6 inch borehole
stainless steel centralizer
1/4 inch bentonite pellets
filter pack 20 mesh
well screen
s.stl cap
3/8 inch bentonite chips

DRAFT BY	RPS 1/15/94	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A60 Sheet 2 of 2

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

MONITORING WELL 2-62B

DRILLING AND SAMPLING INFORMATION

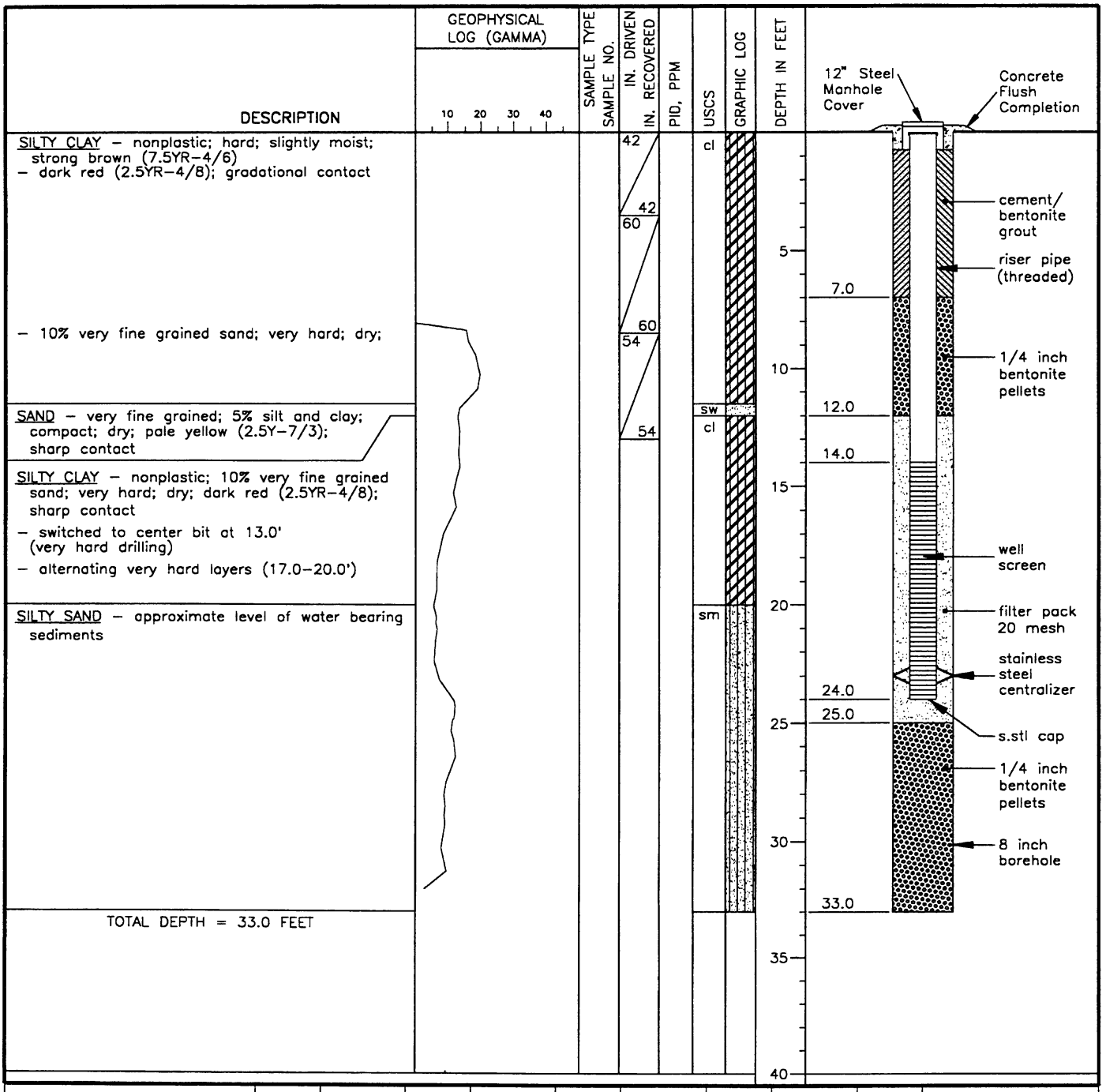
Boring Location: EAST OF FIRE TRAINING AREA
SURFACE ELEV.(FT): 1245.940
TOTAL DEPTH(FT.): 33.0
Logged By: K. KIRSCHENMANN
Date Started: 11/9/93
Drilled By: P. GUERREIN
Date Completed: 11/9/93
GEOTECHNOLOGY. INC.
Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER

Sampling Method: 3"x5' CONTINUOUS SAMPLER

Notes: N 150444.517, E 2182140.558

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 2
Depth(ft.): 14
Type: S.Steel
Centralizers-Type:
Depths(ft.):
2. Screen Dia.(in.): 2
Type: S.Steel Millslotted
Depth Interval(ft.): 14-24
Slot Size(in.): .010
Centralizers-Type: S.Steel
Depths(ft.):23
3. Filter Pack Type: Silica Sand
Depth Interval(ft.): 12-25
Conc. Pad Size: 4'x4'x6"



DRAFT BY	RPS 12/1/93	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A30 Sheet 1 of 1

Client: TINKER AFB
Project Location: TINKER AFB, OKLAHOMA
Project Name: TINKER 5001
Project Number: 409832

MONITORING WELL 2-63B

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF FIRE TRAINING AREA
SURFACE ELEV.(FT): 1243.284
TOTAL DEPTH(FT.): 29.0
Logged By: K. KIRSCHENMANN
Date Started: 11/8/93
Drilled By: P. GUERREIN GEOTECHNOLOGY. INC.
Date Completed: 11/8/93
Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER

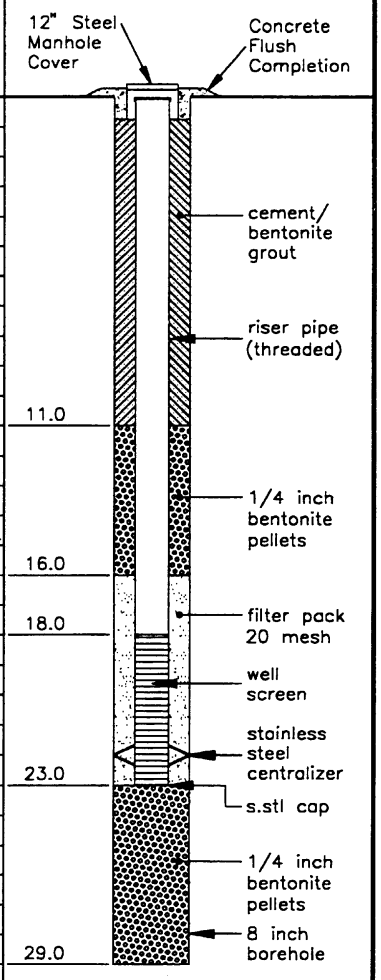
Sampling Method: 3"x5' CONTINUOUS SAMPLER

Notes: N 150386.113, E 2182035.358

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 2
   Depth(ft.): 18 Type: S.Steel
   Centralizers-Type:
   Depths(ft.):
2. Screen Dia.(in.): 2
   Type: S.Steel Millslotted
   Depth Interval(ft.): 18-23
   Slot Size(in.): .010
   Centralizers-Type: S.Steel
   Depths(ft.): 22
3. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 16-23
   Conc. Pad Size: 4'x4'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) 10 20 30 40	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY CLAY - slightly plastic; <10% very fine grained sand; stiff; slightly moist; dark brown (7.5YR-3/4)			42 / 42		cl		0
- <5% to 10% very fine grained sand; dark red (2.5YR-4/8); gradational contact			60 / 60				5
- nonplastic; hard; dry							
SANDY SILTY CLAY - nonplastic; 10% to 20% fine grained sand; hard; dry; dark red (2.5YR-4/8); gradational contact			60 / 60		cl		10
SAND - very fine grained; compact; dry; pale yellow (2.5YR-8/2); sharp contact					sp		11.0
SILTY SAND - 40% clay and silt; 50% to 60% fine to very fine grained sand; firm; dry; dark red (2.5YR-4/8); sharp contact			60 / 48		sm		15
- 60% fine to medium grained sand; slightly moist; gradational contact							16.0
- alternating layers of siltstone and silty sand at 15'							18.0
- moist							20
- drill without sampling due to auger refusal			48 / 48				23.0
TOTAL DEPTH = 29.0 FEET							25
							29.0
							30
							35
							40



DRAFT BY	RPS	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A33 Sheet 1 of 1
	12/2/93								

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

MONITORING WELL 2-64B

DRILLING AND SAMPLING INFORMATION

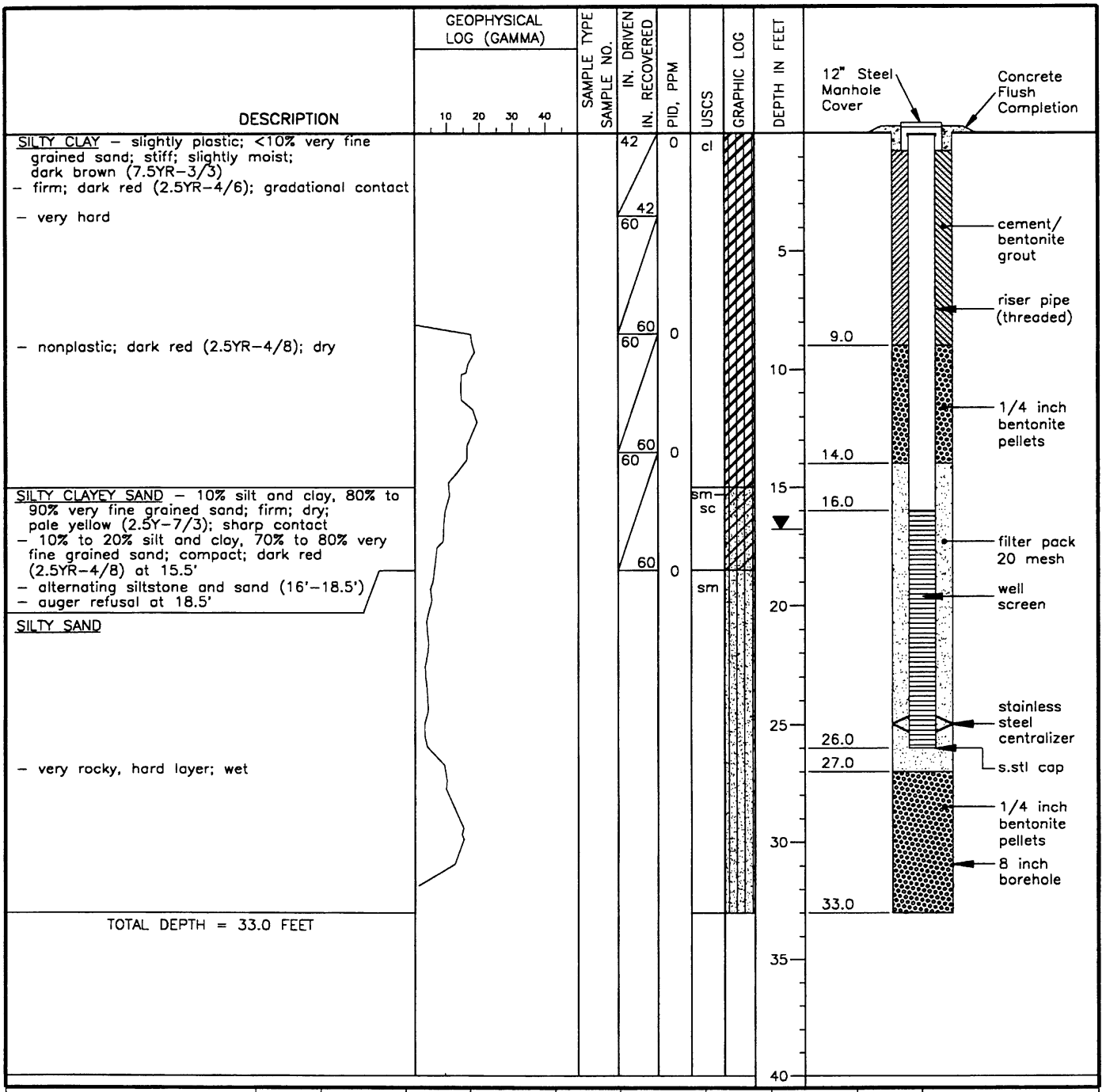
Boring Location: NORTHEAST OF FIRE TRAINING AREA
SURFACE ELEV.(FT): 1245.586
TOTAL DEPTH(FT.): 33.0
Logged By: K. KIRSCHENMANN
Date Started: 11/9/93
Drilled By: P. GUERREIN GEOTECHNOLOGY. INC.
Date Completed: 11/9/93
Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER

Sampling Method: 3"x5' CONTINUOUS SAMPLER

Notes: N 150467.403, E 2181967.757

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 2
Depth(ft.): 16 Type:S.Steel
Centralizers-Type:
Depths(ft.):
2. Screen Dia.(in.): 2
Type: S.Steel Millslotted
Depth Interval(ft.): 16-26
Slot Size(in.): .010
Centralizers-Type: S.Steel
Depths(ft.): 25
3. Filter Pack Type: Silica Sand
Depth Interval(ft.): 14-27
Conc. Pad Size: 4'x4'x6"



DRAFT BY	RPS 12/3/93	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A34 Sheet 1 of 1

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

MONITORING WELL 2-65B

DRILLING AND SAMPLING INFORMATION

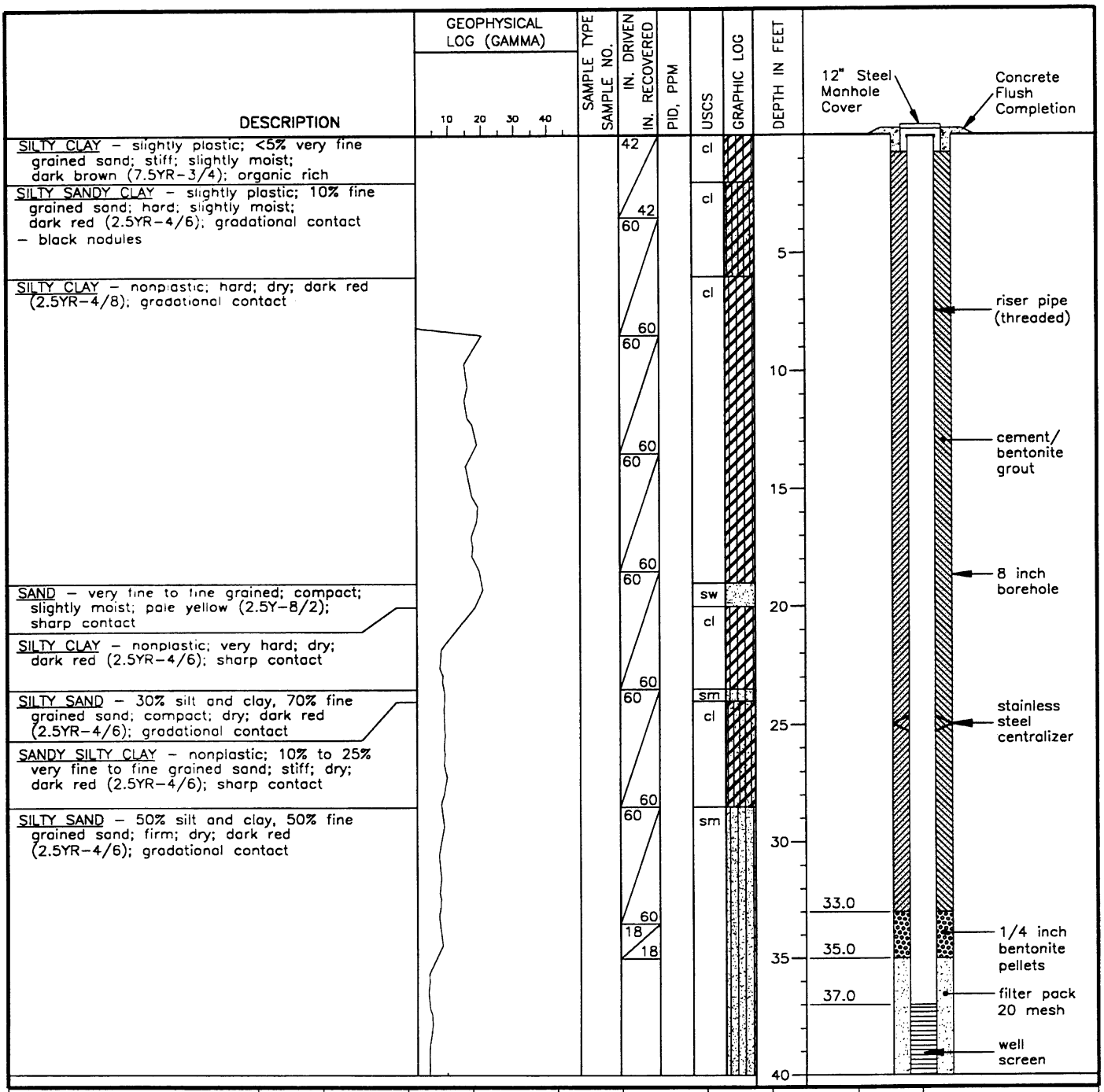
Boring Location: NORTHEAST OF FIRE TRAINING AREA
SURFACE ELEV.(FT): 1250.812
TOTAL DEPTH(FT.): 49.0
Logged By: K. KIRSCHENMANN
Date Started: 11/5/93
Drilled By: P. GUERREIN, GEOTECHNOLOGY, INC.
Date Completed: 11/5/93
Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER

Sampling Method: 3"x5' CONTINUOUS SAMPLER

Notes: NO ANALYTICAL SAMPLES TAKEN
N 150712.875, E 2182183.201

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 2
   Depth(ft.): 37 Type: S.Steel
   Centralizers-Type: S.Steel
   Depths(ft.): 25
2. Screen Dia.(in.): 2
   Type: S.Steel Millslotted
   Depth Interval(ft.): 37-47
   Slot Size(in.): .010
   Centralizers-Type: S.Steel
   Depths(ft.): 46
3. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 35-49
   Conc. Pad Size: 4'x4'x6"



	DRAFT BY	RPS 12/9/93	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A35 Sheet 1 of 2

Client: TINKER AFB
Project Name: TINKER 5001
Project Location: TINKER AFB, OKLAHOMA
Project Number: 409832

MONITORING WELL 2-65B

DRILLING AND SAMPLING INFORMATION

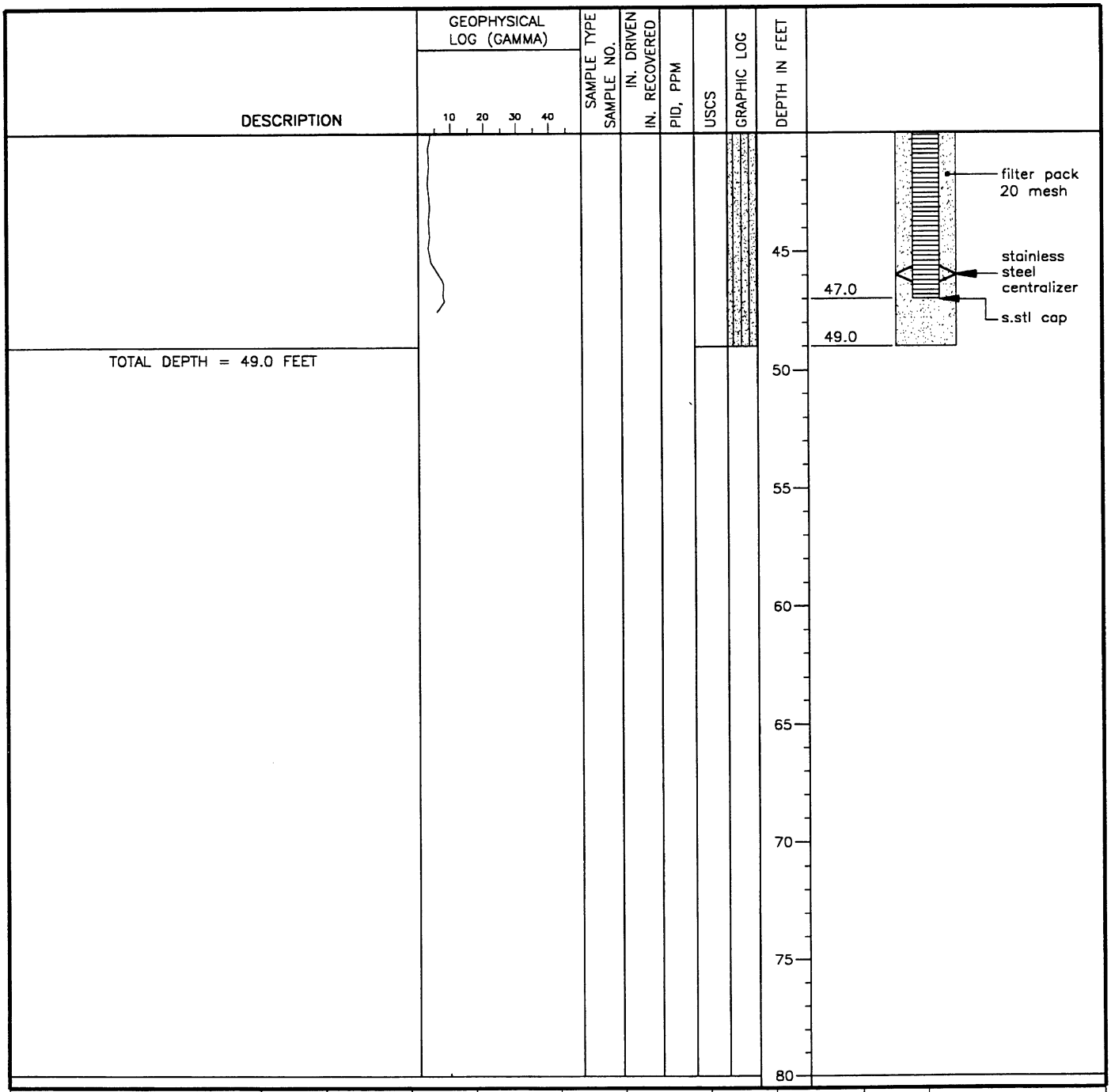
Boring Location: NORTHEAST OF FIRE TRAINING AREA
SURFACE ELEV.(FT): 1250.812
TOTAL DEPTH(FT.): 49.0
Logged By: K. KIRSCHENMANN
Date Started: 11/5/93
Drilled By: P. GUERREIN GEOTECHNOLOGY. INC.
Date Completed: 11/5/93
Drill Rig Type: CME-75
Drilling Method: 8" HOLLOW STEM AUGER

Sampling Method: 3"x5' CONTINUOUS SAMPLER

Notes: NO ANALYTICAL SAMPLES TAKEN
N 150712.875, E 2182183.201

WELL COMPLETION DATA

Elev-Top of Casing(ft.):
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 2
Depth(ft.): 37
Type:S.Steel
Centralizers-Type: S.Steel
Depths(ft.): 25
2. Screen Dia.(in.): 2
Type: S.Steel Millslotted
Depth Interval(ft.): 37-47
Slot Size(in.): .010
Centralizers-Type: S.Steel
Depths(ft.): 46
3. Filter Pack Type: Silica Sand
Depth Interval(ft.): 35-49
Conc. Pad Size: 4'x4'x6"



DRAFT BY	RPS 12/9/93	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	409832-A35 Sheet 2 of 2

APPENDIX B
GEOPHYSICAL LOGS

APPENDIX C
DATA TABLES, CERTIFICATES OF ANALYSIS, CHAIN-OF-CUSTODY

ANALYTICAL RESULTS

SOIL

Analytical ..ults at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-62A			2-62A			2-62A			2-62A			2-62A		
Sample ID:	A1561			A1562			A1563			A1564			A1565		
Depth:	2 - 3			6 - 7			10 - 11			15 - 16			22 - 23		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	11000	N	mg/kg	15000	N	mg/kg	10000	N	mg/kg	1700	N	mg/kg	750	N	mg/kg
Arsenic - Graphite Furnace	1.0		mg/kg	3.4		mg/kg	5.4		mg/kg	1.2		mg/kg	<1.1	U	mg/kg
Barium	630	N	mg/kg	32	N	mg/kg	<22	UN	mg/kg	<21	UN	mg/kg	60	N	mg/kg
Beryllium	0.94		mg/kg	1.3		mg/kg	1.2		mg/kg	<0.53	U	mg/kg	<0.54	U	mg/kg
Cadmium	0.69		mg/kg	<0.48	U	mg/kg	<0.55	U	mg/kg	0.57		mg/kg	<0.54	U	mg/kg
Chromium	13		mg/kg	14		mg/kg	14		mg/kg	7.6		mg/kg	3.0		mg/kg
Chromium VI	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg
Copper	9.8		mg/kg	22		mg/kg	21		mg/kg	1.7		mg/kg	1.1		mg/kg
Iron	11000	N	mg/kg	11000	N	mg/kg	14000	N	mg/kg	7300	N	mg/kg	2400	N	mg/kg
Lead - Graphite Furnace	5.0	N	mg/kg	5.0	N	mg/kg	7.1	N	mg/kg	3.2	N	mg/kg	1.5	N	mg/kg
Mercury	<0.025	U	mg/kg	<0.022	U	mg/kg	<0.024	U	mg/kg	<0.023	U	mg/kg	<0.023	U	mg/kg
Nickel	17		mg/kg	25		mg/kg	21		mg/kg	7.3		mg/kg	<4.3	U	mg/kg
Silver	0.41		mg/kg	<0.95	U	mg/kg	<1.1	U	mg/kg	<1.1	U	mg/kg	<1.1	U	mg/kg
Zinc	22		mg/kg	29		mg/kg	22		mg/kg	7.1		mg/kg	3.1		mg/kg
1,2,4-Trichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,2-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,3-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,4-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4,5-Trichlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4,6-Trichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dimethylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dinitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,6-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chloronaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylnaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2-Nitrophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical results at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-62A			2-62A			2-62A			2-62A			2-62A		
Sample ID:	A1561			A1562			A1563			A1564			A1565		
Depth:	2 - 3			6 - 7			10 - 11			15 - 16			22 - 23		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
3,3'-Dichlorobenzidine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
3-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4,6-Dinitro-2-methylphenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Bromophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloro-3-methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloroaniline	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chlorophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Nitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Acenaphthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Acenaphthylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(b)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(g,h,i)perylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(k)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzoic Acid	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzyl alcohol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Butylbenzylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Chrysene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-butylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-octylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzo(a,h)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzofuran	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Diethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dimethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluorene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical results at the FTA
for SO
Tinker Air Force Base

Parameters	Well/Boring: 2-62A Sample ID: A1561 Depth: 2 - 3			2-62A A1562 6 - 7			2-62A A1563 10 - 11			2-62A A1564 15 - 16			2-62A A1565 22 - 23		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Hexachlorobutadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorocyclopentadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachloroethane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Indeno(1,2,3-cd)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Isophorone	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitroso-di-n-propylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitrosodiphenylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Naphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Nitrobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pentachlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Phenanthrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Phenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethoxy)methane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethyl)ether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroisopropyl)ethe	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Ethylhexyl)phthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,1,1-Trichloroethane	3.1	J	ug/kg	6.7		ug/kg	5.6		ug/kg	5.2		ug/kg	5.4		ug/kg
1,1,2,2-Tetrachloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloropropane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
2-Butanone	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg	<100	U	ug/kg
2-Chloroethylvinyl ether	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
2-Hexanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
4-Methyl-2-Pentanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
Acetone	<100	U	ug/kg	6.8	J	ug/kg	<100	U	ug/kg	6.8	J	ug/kg	5.8	J	ug/kg
Benzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Bromoform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical Results at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-62A			2-62A			2-62A			2-62A			2-62A		
Sample ID:	A1561			A1562			A1563			A1564			A1565		
Depth:	2 - 3			6 - 7			10 - 11			15 - 16			22 - 23		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Bromomethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Carbon Disulfide	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Carbon Tetrachloride	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorobenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorodibromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloroethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Chloroform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloromethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Dichlorobromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Ethylbenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Methylene Chloride	2.9	J	ug/kg	1.9	J	ug/kg	2.1	J	ug/kg	2.0	J	ug/kg	2.1	J	ug/kg
Styrene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Tetrachloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Toluene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Trichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Vinyl Acetate	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Vinyl Chloride	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Xylenes (total)	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis 1,3 Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans 1,3-Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

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J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical Results at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-63A			2-63A			2-63A			2-63A			2-63A		
Sample ID:	A1555			A1556			A1557			A1558			A1559		
Depth:	2 - 3			7 - 8			10 - 11			15 - 16			18 - 19		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	11000	N	mg/kg	11000	N	mg/kg	12000	N	mg/kg	900	N	mg/kg	1500	N	mg/kg
Arsenic - Graphite Furnace	3.0	N	mg/kg	<1.2	UN	mg/kg	<1.2	UN	mg/kg	<0.95	UN	mg/kg	<0.85	UN	mg/kg
Barium	900	N	mg/kg	22	N	mg/kg	110	N	mg/kg	20	N	mg/kg	<23	UN	mg/kg
Beryllium	1.7		mg/kg	1.4		mg/kg	1.9		mg/kg	<0.49	U	mg/kg	<0.57	U	mg/kg
Cadmium	0.71		mg/kg	<0.48	U	mg/kg	0.77		mg/kg	<0.49	U	mg/kg	0.90		mg/kg
Chromium	13		mg/kg	11		mg/kg	20		mg/kg	3.9		mg/kg	4.0		mg/kg
Chromium VI	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg
Copper	9.9		mg/kg	15		mg/kg	18		mg/kg	<2.4	U	mg/kg	<2.8	U	mg/kg
Iron	15000	N	mg/kg	10000	N	mg/kg	17000	N	mg/kg	2800	N	mg/kg	3700	N	mg/kg
Lead - Graphite Furnace	13	N	mg/kg	7.3	N	mg/kg	7.0	N	mg/kg	0.88	N	mg/kg	1.2	N	mg/kg
Mercury	<0.023	U	mg/kg	<0.025	U	mg/kg	<0.024	U	mg/kg	<0.023	U	mg/kg	<0.021	U	mg/kg
Nickel	19		mg/kg	18		mg/kg	20		mg/kg	<3.9	U	mg/kg	<4.5	U	mg/kg
Silver	<0.93	U	mg/kg	<0.96	U	mg/kg	<1.2	U	mg/kg	<0.97	U	mg/kg	<1.1	U	mg/kg
Zinc	18		mg/kg	24		mg/kg	27		mg/kg	4.7		mg/kg	4.8		mg/kg
1,2,4-Trichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,2-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,3-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,4-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4,5-Trichlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4,6-Trichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dimethylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dinitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,6-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chloronaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylnaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2-Nitrophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical results at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-63A			2-63A			2-63A			2-63A			2-63A		
Sample ID:	A1555			A1556			A1557			A1558			A1559		
Depth:	2 - 3			7 - 8			10 - 11			15 - 16			18 - 19		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
3,3'-Dichlorobenzidine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
3-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4,6-Dinitro-2-methylphenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Bromophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloro-3-methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloroaniline	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chlorophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Nitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Acenaphthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Acenaphthylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(b)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(g,h,i)perylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(k)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzoic Acid	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzyl alcohol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Butylbenzylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	0.63		mg/kg	0.57		mg/kg
Chrysene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-butylphthalate	1.7		mg/kg	0.34		mg/kg	0.83		mg/kg	0.76		mg/kg	0.65		mg/kg
Di-n-octylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzo(a,h)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzofuran	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Diethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	0.04	J	mg/kg	<0.330	U	mg/kg	0.04	J	mg/kg
Dimethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluorene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
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Analytical ...sults at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-63A			2-63A			2-63A			2-63A			2-63A		
Sample ID:	A1555			A1556			A1557			A1558			A1559		
Depth:	2 - 3			7 - 8			10 - 11			15 - 16			18 - 19		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Hexachlorobutadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorocyclopentadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachloroethane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Indeno(1,2,3-cd)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Isophorone	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitroso-di-n-propylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitrosodiphenylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Naphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Nitrobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pentachlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Phenanthrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Phenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethoxy)methane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethyl)ether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroisopropyl)ethe	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Ethylhexyl)phthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	1.7		mg/kg	1.7		mg/kg
1,1,1-Trichloroethane	3.8	J	ug/kg	4.3	J	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2,2-Tetrachloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloropropane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
2-Butanone	3.2	J	ug/kg	3.1	J	ug/kg	<100	U	ug/kg	<100	U	ug/kg	15	JB	ug/kg
2-Chloroethylvinyl ether	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
2-Hexanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
4-Methyl-2-Pentanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
Acetone	6.5	JB	ug/kg	9.1	JB	ug/kg	15	J	ug/kg	12	JB	ug/kg	67	J	ug/kg
Benzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Bromoform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical Results at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-63A			2-63A			2-63A			2-63A			2-63A		
Sample ID:	A1555			A1556			A1557			A1558			A1559		
Depth:	2 - 3			7 - 8			10 - 11			15 - 16			18 - 19		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Bromomethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Carbon Disulfide	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Carbon Tetrachloride	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorobenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorodibromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloroethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Chloroform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloromethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Dichlorobromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Ethylbenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Methylene Chloride	7.9	J	ug/kg	5.4	J	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Styrene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Tetrachloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Toluene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Trichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Vinyl Acetate	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Vinyl Chloride	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Xylenes (total)	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis 1,3 Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans 1,3-Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

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J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical Results at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-64A			2-64A			2-64A			2-64A			2-64A		
Sample ID:	A1548			A1549			A1550			A1551			A1552		
Depth:	2 - 3			7 - 8			7 - 8			12 - 13			17 - 18		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	12000	N	mg/kg	16000	N	mg/kg	12000	N	mg/kg	9900	N	mg/kg	1800	N	mg/kg
Arsenic - Graphite Furnace	2.9		mg/kg	1.8		mg/kg	1.7		mg/kg	1.1		mg/kg	<1.2	U	mg/kg
Barium	690	N	mg/kg	<22	UN	mg/kg	<22	UN	mg/kg	<21	UN	mg/kg	56	N	mg/kg
Beryllium	1.4		mg/kg	1.9		mg/kg	1.6		mg/kg	1.5		mg/kg	<0.45	U	mg/kg
Cadmium	1.1		mg/kg	0.55		mg/kg	<0.54	U	mg/kg	<0.52	U	mg/kg	<0.45	U	mg/kg
Chromium	15		mg/kg	19		mg/kg	14		mg/kg	11		mg/kg	8.5		mg/kg
Chromium VI	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg
Copper	8.5		mg/kg	22		mg/kg	20		mg/kg	19		mg/kg	<2.3	U	mg/kg
Iron	13000	N	mg/kg	13000	N	mg/kg	9800	N	mg/kg	11000	N	mg/kg	3700	N	mg/kg
Lead - Graphite Furnace	7.2	N	mg/kg	2.5	N	mg/kg	3.0	N	mg/kg	7.8	N	mg/kg	1.5	N	mg/kg
Mercury	<0.030	U	mg/kg	<0.031	U	mg/kg	<0.032	U	mg/kg	<0.030	U	mg/kg	<0.032	U	mg/kg
Nickel	17		mg/kg	28		mg/kg	22		mg/kg	21		mg/kg	6.3		mg/kg
Silver	<0.93	U	mg/kg	<1.1	U	mg/kg	<1.1	U	mg/kg	<1.0	U	mg/kg	<0.91	U	mg/kg
Zinc	23		mg/kg	33		mg/kg	26		mg/kg	22		mg/kg	7.8		mg/kg
1,2,4-Trichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,2-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,3-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,4-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4,5-Trichlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4,6-Trichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dimethylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dinitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,6-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chloronaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylnaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2-Nitrophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

B = Analyte was also found in sample blank
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J = Concentration is an estimated value
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< = Not detected
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Analytical data has not been validated.

Analytical Results at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-64A			2-64A			2-64A			2-64A			2-64A		
Sample ID:	A1548			A1549			A1550			A1551			A1552		
Depth:	2 - 3			7 - 8			7 - 8			12 - 13			17 - 18		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
3,3'-Dichlorobenzidine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
3-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4,6-Dinitro-2-methylphenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Bromophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloro-3-methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloroaniline	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chlorophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Nitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Acenaphthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Acenaphthylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(b)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(g,h,i)perylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(k)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzoic Acid	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzyl alcohol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Butylbenzylphthalate	0.56		mg/kg	0.67		mg/kg	0.78		mg/kg	0.96		mg/kg	<0.330	U	mg/kg
Chrysene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-butylphthalate	1.4		mg/kg	1.2		mg/kg	1.2		mg/kg	1.4		mg/kg	0.061	J	mg/kg
Di-n-octylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzo(a,h)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzofuran	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Diethylphthalate	0.04	J	mg/kg	0.072	J	mg/kg	0.07	J	mg/kg	0.082	J	mg/kg	<0.330	U	mg/kg
Dimethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluorene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

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Analytical results at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-64A			2-64A			2-64A			2-64A			2-64A		
Sample ID:	A1548			A1549			A1550			A1551			A1552		
Depth:	2 - 3			7 - 8			7 - 8			12 - 13			17 - 18		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Hexachlorobutadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorocyclopentadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachloroethane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Indeno(1,2,3-cd)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Isophorone	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitroso-di-n-propylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitrosodiphenylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Naphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Nitrobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pentachlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Phenanthrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Phenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethoxy)methane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethyl)ether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroisopropyl)ethe	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Ethylhexyl)phthalate	1.3		mg/kg	1.5		mg/kg	1.9		mg/kg	2.1		mg/kg	<0.330	U	mg/kg
1,1,1-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2,2-Tetrachloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloropropane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
2-Butanone	2.5	J	ug/kg	<100	U	ug/kg	3.0	J	ug/kg	4.0	J	ug/kg	2.0	J	ug/kg
2-Chloroethylvinyl ether	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
2-Hexanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
4-Methyl-2-Pentanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
Acetone	8.6	JB	ug/kg	13	JB	ug/kg	13	JB	ug/kg	7.2	JB	ug/kg	11	JB	ug/kg
Benzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Bromoform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical results at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-64A			2-64A			2-64A			2-64A			2-64A		
Sample ID:	A1548			A1549			A1550			A1551			A1552		
Depth:	2 - 3			7 - 8			7 - 8			12 - 13			17 - 18		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Bromomethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Carbon Disulfide	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Carbon Tetrachloride	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorobenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorodibromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloroethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Chloroform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloromethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Dichlorobromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Ethylbenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Methylene Chloride	<10	U	ug/kg	5.5	JB	ug/kg	5.8	JB	ug/kg	6.5	JB	ug/kg	7.4	J	ug/kg
Styrene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Tetrachloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Toluene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Trichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Vinyl Acetate	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Vinyl Chloride	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Xylenes (total)	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis 1,3 Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans 1,3-Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

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Analytical . ..ults at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-65A			2-65A			2-65A			2-65A			2-65A		
Sample ID:	A1540			A1541			A1542			A1543			A1544		
Depth:	2.5 - 3.5			6 - 7			12 - 13			16 - 17			20 - 21		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	8400	N	mg/kg	5900	N	mg/kg	19000	N	mg/kg	6300	N	mg/kg	9000	N	mg/kg
Arsenic - Graphite Furnace	2.8		mg/kg	3.3		mg/kg	1.2		mg/kg	4.1		mg/kg	2.5		mg/kg
Barium	150	N	mg/kg	69	N	mg/kg	27	N	mg/kg	32	N	mg/kg	54	N	mg/kg
Beryllium	1.1		mg/kg	0.88		mg/kg	2.0		mg/kg	1.0		mg/kg	1.9		mg/kg
Cadmium	0.74		mg/kg	<0.46	U	mg/kg	<0.55	U	mg/kg	<0.46	U	mg/kg	1.1		mg/kg
Chromium	9.4		mg/kg	8.2		mg/kg	24		mg/kg	11		mg/kg	37		mg/kg
Chromium VI	<0.49	U	mg/kg	<0.51	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg	<0.50	U	mg/kg
Copper	5.2		mg/kg	5.5		mg/kg	22		mg/kg	9.2		mg/kg	11		mg/kg
Iron	10000	N	mg/kg	7200	N	mg/kg	16000	N	mg/kg	11000	N	mg/kg	22000	N	mg/kg
Lead - Graphite Furnace	8.8	N	mg/kg	5.5	N	mg/kg	3.5	N	mg/kg	9.1	N	mg/kg	5.7	N	mg/kg
Mercury	<0.025	U	mg/kg	<0.020	U	mg/kg	<0.023	U	mg/kg	<0.024	U	mg/kg	<0.024	U	mg/kg
Nickel	12		mg/kg	12		mg/kg	26		mg/kg	13		mg/kg	22		mg/kg
Silver	<0.85	U	mg/kg	<0.92	U	mg/kg	<1.1	U	mg/kg	<0.93	U	mg/kg	<0.98	U	mg/kg
Zinc	12		mg/kg	15		mg/kg	35		mg/kg	17		mg/kg	26		mg/kg
1,2,4-Trichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,2-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,3-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,4-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4,5-Trichlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4,6-Trichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dimethylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dinitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2,6-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chloronaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylnaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
2-Nitrophenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

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Analytical ...sults at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-65A			2-65A			2-65A			2-65A			2-65A		
Sample ID:	A1540			A1541			A1542			A1543			A1544		
Depth:	2.5 - 3.5			6 - 7			12 - 13			16 - 17			20 - 21		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
3,3'-Dichlorobenzidine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
3-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4,6-Dinitro-2-methylphenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Bromophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloro-3-methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloroaniline	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chlorophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Nitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Acenaphthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Acenaphthylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(b)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(g,h,i)perylene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(k)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzoic Acid	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzyl alcohol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Butylbenzylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Chrysene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-butylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-octylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzo(a,h)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzofuran	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Diethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Dimethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluorene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg

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Analytical Results at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-65A			2-65A			2-65A			2-65A			2-65A		
Sample ID:	A1540			A1541			A1542			A1543			A1544		
Depth:	2.5 - 3.5			6 - 7			12 - 13			16 - 17			20 - 21		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Hexachlorobutadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorocyclopentadiene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachloroethane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Indeno(1,2,3-cd)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Isophorone	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitroso-di-n-propylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitrosodiphenylamine	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Naphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Nitrobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pentachlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg	<0.825	U	mg/kg
Phenanthrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Phenol	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
Pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethoxy)methane	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethyl)ether	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroisopropyl)ethe	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Ethylhexyl)phthalate	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg	<0.330	U	mg/kg
1,1,1-Trichloroethane	1.1	BJ	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2,2-Tetrachloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1,2-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloropropane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
2-Butanone	4.4	J	ug/kg	3.5	J	ug/kg	<100	U	ug/kg	<100	U	ug/kg	2.8	J	ug/kg
2-Chloroethylvinyl ether	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
2-Hexanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
4-Methyl-2-Pentanone	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg	<50	U	ug/kg
Acetone	5.4	JB	ug/kg	8.7	JB	ug/kg	9.1	JB	ug/kg	5.7	JB	ug/kg	7.6	JB	ug/kg
Benzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Bromoform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

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J = Concentration is an estimated value
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Analytical . ults at the FTA
for SO
Tinker Air Force Base

Parameters	Well/Boring: 2-65A Sample ID: A1540 Depth: 2.5 - 3.5			2-65A A1541 6 - 7			2-65A A1542 12 - 13			2-65A A1543 16 - 17			2-65A A1544 20 - 21		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Bromomethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Carbon Disulfide	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Carbon Tetrachloride	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorobenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chlorodibromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloroethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Chloroform	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Chloromethane	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Dichlorobromomethane	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Ethylbenzene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Methylene Chloride	5.6	JB	ug/kg	6.8	JB	ug/kg	6.8	JB	ug/kg	3.3	JB	ug/kg	2.8	JB	ug/kg
Styrene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Tetrachloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Toluene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Trichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
Vinyl Acetate	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Vinyl Chloride	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg	<10	U	ug/kg
Xylenes (total)	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis 1,3 Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
cis-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans 1,3-Dichloropropene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg
trans-1,2-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg	<5	U	ug/kg

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Analytical . ..lts at the FTA
for SO
Tinker Air Force Base

Well/Boring:	2-65A			2-65A		
Sample ID:	A1545			A1546		
Depth:	26 - 27			29 - 30		
Parameters	Result	QFR	Units	Result	QFR	Units
Aluminum	2300	N	mg/kg	1500	N	mg/kg
Arsenic - Graphite Furnace	<1.1	U	mg/kg	2.3		mg/kg
Barium	<22	UN	mg/kg	<22	UN	mg/kg
Beryllium	<0.54	U	mg/kg	<0.56	U	mg/kg
Cadmium	<0.54	U	mg/kg	<0.56	U	mg/kg
Chromium	8.8		mg/kg	6.7		mg/kg
Chromium VI	<0.51	U	mg/kg	<0.51	U	mg/kg
Copper	<2.7	U	mg/kg	<2.8	U	mg/kg
Iron	6100	N	mg/kg	4600	N	mg/kg
Lead - Graphite Furnace	3.1	N	mg/kg	2.9	N	mg/kg
Mercury	<0.024	U	mg/kg	<0.022	U	mg/kg
Nickel	7.9		mg/kg	6.0		mg/kg
Silver	<1.1	U	mg/kg	<1.1	U	mg/kg
Zinc	7.8		mg/kg	5.9		mg/kg
1,2,4-Trichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg
1,2-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg
1,3-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg
1,4-Dichlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4,5-Trichlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4,6-Trichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dichlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dimethylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg
2,4-Dinitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg
2,4-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg
2,6-Dinitrotoluene	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chloronaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Chlorophenol	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylnaphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg
2-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg
2-Nitrophenol	<0.330	U	mg/kg	<0.330	U	mg/kg

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Analytical results at the FTA
for SO
Tinker Air Force Base

Parameters	Well/Boring: 2-65A Sample ID: A1545 Depth: 26 - 27			Well/Boring: 2-65A Sample ID: A1546 Depth: 29 - 30		
	Result	QFR	Units	Result	QFR	Units
3,3'-Dichlorobenzidine	<0.330	U	mg/kg	<0.330	U	mg/kg
3-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg
4,6-Dinitro-2-methylphenol	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Bromophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloro-3-methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chloroaniline	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Chlorophenyl-phenylether	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Methylphenol	<0.330	U	mg/kg	<0.330	U	mg/kg
4-Nitroaniline	<0.825	U	mg/kg	<0.825	U	mg/kg
4-Nitrophenol	<0.825	U	mg/kg	<0.825	U	mg/kg
Acenaphthene	<0.330	U	mg/kg	<0.330	U	mg/kg
Acenaphthylene	<0.330	U	mg/kg	<0.330	U	mg/kg
Anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(a)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(b)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(g,h,i)perylene	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzo(k)fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzoic Acid	<0.330	U	mg/kg	<0.330	U	mg/kg
Benzyl alcohol	<0.330	U	mg/kg	<0.330	U	mg/kg
Butylbenzylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg
Chrysene	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-butylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg
Di-n-octylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzo(a,h)anthracene	<0.330	U	mg/kg	<0.330	U	mg/kg
Dibenzofuran	<0.330	U	mg/kg	<0.330	U	mg/kg
Diethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg
Dimethylphthalate	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluoranthene	<0.330	U	mg/kg	<0.330	U	mg/kg
Fluorene	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg

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Analytical ...sults at the FTA
for SO
Tinker Air Force Base

Parameters	Well/Boring: 2-65A Sample ID: A1545 Depth: 26 - 27			Well/Boring: 2-65A Sample ID: A1546 Depth: 29 - 30		
	Result	QFR	Units	Result	QFR	Units
Hexachlorobutadiene	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachlorocyclopentadiene	<0.330	U	mg/kg	<0.330	U	mg/kg
Hexachloroethane	<0.330	U	mg/kg	<0.330	U	mg/kg
Indeno(1,2,3-cd)pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg
Isophorone	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitroso-di-n-propylamine	<0.330	U	mg/kg	<0.330	U	mg/kg
N-Nitrosodiphenylamine	<0.330	U	mg/kg	<0.330	U	mg/kg
Naphthalene	<0.330	U	mg/kg	<0.330	U	mg/kg
Nitrobenzene	<0.330	U	mg/kg	<0.330	U	mg/kg
Pentachlorophenol	<0.825	U	mg/kg	<0.825	U	mg/kg
Phenanthrene	<0.330	U	mg/kg	<0.330	U	mg/kg
Phenol	<0.330	U	mg/kg	<0.330	U	mg/kg
Pyrene	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethoxy)methane	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroethyl)ether	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Chloroisopropyl)ethe	<0.330	U	mg/kg	<0.330	U	mg/kg
bis(2-Ethylhexyl)phthalate	0.07	J	mg/kg	<0.330	U	mg/kg
1,1,1-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg
1,1,2,2-Tetrachloroethane	<5	U	ug/kg	<5	U	ug/kg
1,1,2-Trichloroethane	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg
1,1-Dichloroethene	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloroethane	<5	U	ug/kg	<5	U	ug/kg
1,2-Dichloropropane	<5	U	ug/kg	<5	U	ug/kg
2-Butanone	5.1	J	ug/kg	2.4	J	ug/kg
2-Chloroethylvinyl ether	<10	U	ug/kg	<10	U	ug/kg
2-Hexanone	<50	U	ug/kg	<50	U	ug/kg
4-Methyl-2-Pentanone	<50	U	ug/kg	<50	U	ug/kg
Acetone	6.7	JB	ug/kg	8.0	JB	ug/kg
Benzene	<5	U	ug/kg	<5	U	ug/kg
Bromoform	<5	U	ug/kg	<5	U	ug/kg

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Analytical Results at the FTA
for SO
Tinker Air Force Base

	Well/Boring:	2-65A			2-65A		
	Sample ID:	A1545			A1546		
	Depth:	26 - 27			29 - 30		
Parameters		Result	QFR	Units	Result	QFR	Units
Bromomethane		<10	U	ug/kg	<10	U	ug/kg
Carbon Disulfide		<5	U	ug/kg	<5	U	ug/kg
Carbon Tetrachloride		<5	U	ug/kg	<5	U	ug/kg
Chlorobenzene		<5	U	ug/kg	<5	U	ug/kg
Chlorodibromomethane		<5	U	ug/kg	<5	U	ug/kg
Chloroethane		<10	U	ug/kg	<10	U	ug/kg
Chloroform		<5	U	ug/kg	<5	U	ug/kg
Chloromethane		<10	U	ug/kg	<10	U	ug/kg
Dichlorobromomethane		<5	U	ug/kg	<5	U	ug/kg
Ethylbenzene		<5	U	ug/kg	<5	U	ug/kg
Methylene Chloride		1.3	JB	ug/kg	<10	U	ug/kg
Styrene		<5	U	ug/kg	<5	U	ug/kg
Tetrachloroethene		<5	U	ug/kg	<5	U	ug/kg
Toluene		<5	U	ug/kg	<5	U	ug/kg
Trichloroethene		<5	U	ug/kg	<5	U	ug/kg
Vinyl Acetate		<10	U	ug/kg	<10	U	ug/kg
Vinyl Chloride		<10	U	ug/kg	<10	U	ug/kg
Xylenes (total)		<5	U	ug/kg	<5	U	ug/kg
cis 1,3 Dichloropropene		<5	U	ug/kg	<5	U	ug/kg
cis-1,2-Dichloroethene		<5	U	ug/kg	<5	U	ug/kg
trans 1,3-Dichloropropene		<5	U	ug/kg	<5	U	ug/kg
trans-1,2-Dichloroethene		<5	U	ug/kg	<5	U	ug/kg

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ANALYTICAL RESULTS

GROUNDWATER

Analytical Results at the FTA
for WG
Tinker Air Force Base

Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Well/Boring:	2-62B			2-62B			2-62B			2-63B		
Sample ID:	A1601			A1602			A1665			A1600		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Alkalinity, Titrimetric	520		mg/l as	330		mg/l as				470		mg/l as
Chemical Oxygen Demand	35		mg/l	<25	U	mg/l				<25	U	mg/l
Chloride by Ion Chrom.	87		mg/l	89		mg/l				39		mg/l
Nitrate and Nitrite	2.9		mg/l	2.7		mg/l				3.8		mg/l
Phenolics	<0.010	U	mg/l	<0.010	U	mg/l				<0.010	U	mg/l
Silica	7.3		mg/l	6.9		mg/l				8.9		mg/l
Sulfate by Ion Chrom.	110		mg/l	230		mg/l				36		mg/l
Total Phosphorus	0.15		mg/l	<0.10	U	mg/l				<0.10	U	mg/l
Aluminum	8.2		mg/l	5.1		mg/l				5.9		mg/l
Arsenic - Graphite Furnace	<0.010	U	mg/l	<0.010	U	mg/l				<0.010	U	mg/l
Barium	0.21		mg/l	0.19		mg/l				0.35		mg/l
Cadmium	<0.0050	UN	mg/l	<0.0050	UN	mg/l				<0.0050	UN	mg/l
Calcium	48	N	mg/l	58	N	mg/l				61	N	mg/l
Chromium	0.040	N	mg/l	0.029	N	mg/l				0.014	N	mg/l
Chromium VI	<0.010	U	mg/l	<0.010	U	mg/l				<0.010	U	mg/l
Copper	0.043	N	mg/l	0.049	N	mg/l				<0.025	UN	mg/l
Iron	11		mg/l	5.5		mg/l				13		mg/l
Lead - Graphite Furnace	0.0040		mg/l	0.0031		mg/l				<0.0030	U	mg/l
Magnesium	43		mg/l	52		mg/l				45		mg/l
Manganese	0.14	N	mg/l	0.10	N	mg/l				0.23	N	mg/l
Mercury	<0.00020	U	mg/l	<0.00020	U	mg/l				<0.00020	U	mg/l
Nickel	<0.040	UN	mg/l	<0.040	UN	mg/l				<0.040	UN	mg/l
Potassium	<5.0	U	mg/l	<5.0	U	mg/l				<5.0	U	mg/l
Selenium	<0.10	UN	mg/l	<0.10	UN	mg/l				0.10	N	mg/l
Silver	<0.010	UN	mg/l	<0.010	UN	mg/l				<0.010	UN	mg/l
Sodium	110		mg/l	130		mg/l				59		mg/l
Zinc	0.024	N	mg/l	0.021	N	mg/l				0.022	N	mg/l
1,2,4-Trichlorobenzene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
1,2-Dichlorobenzene	1900	D	ug/l	1700	D	ug/l				<10	U	ug/l
1,3-Dichlorobenzene	53		ug/l	46		ug/l				<10	U	ug/l
1,4-Dichlorobenzene	290	D	ug/l	250	D	ug/l				<10	U	ug/l

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Analytical Results at the FTA
for WG
Tinker Air Force Base

Parameters	Well/Boring: 2-62B Sample ID: A1601 Depth: 0 - 0			2-62B A1602 0 - 0			2-62B A1665 0 - 0			2-63B A1600 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
2,4,5-Trichlorophenol	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
2,4,6-Trichlorophenol	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
2,4-Dichlorophenol	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
2,4-Dimethylphenol	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
2,4-Dinitrophenol	<25	U	ug/l	<25	U	ug/l				<25	U	ug/l
2,4-Dinitrotoluene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
2,6-Dinitrotoluene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
2-Chloronaphthalene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
2-Chlorophenol	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
2-Methylnaphthalene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
2-Methylphenol	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
2-Nitroaniline	<25	U	ug/l	<25	U	ug/l				<25	U	ug/l
2-Nitrophenol	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
3,3'-Dichlorobenzidine	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
3-Nitroaniline	<25	U	ug/l	<25	U	ug/l				<25	U	ug/l
4,6-Dinitro-2-methylphenol	<25	U	ug/l	<25	U	ug/l				<25	U	ug/l
4-Bromophenyl-phenylether	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
4-Chloro-3-methylphenol	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
4-Chloroaniline	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
4-Chlorophenyl-phenylether	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
4-Methylphenol	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
4-Nitroaniline	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
4-Nitrophenol	<25	U	ug/l	<25	U	ug/l				<25	U	ug/l
Acenaphthene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Acenaphthylene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Anthracene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Benzo(a)anthracene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Benzo(a)pyrene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Benzo(b)fluoranthene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Benzo(g,h,i)perylene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Benzo(k)fluoranthene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l

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Analytical results at the FTA
for WG
Tinker Air Force Base

Well/Boring:	2-62B			2-62B			2-62B			2-63B		
Sample ID:	A1601			A1602			A1665			A1600		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Benzoic Acid	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Benzyl alcohol	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Butylbenzylphthalate	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Chrysene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Di-n-butylphthalate	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Di-n-octylphthalate	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Dibenzo(a,h)anthracene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Dibenzofuran	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Diethylphthalate	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Dimethylphthalate	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Fluoranthene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Fluorene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Hexachlorobenzene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Hexachlorobutadiene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Hexachlorocyclopentadiene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Hexachloroethane	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Indeno(1,2,3-cd)pyrene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Isophorone	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
N-Nitroso-di-n-propylamine	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
N-Nitrosodiphenylamine	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Naphthalene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Nitrobenzene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Pentachlorophenol	<25	U	ug/l	<25	U	ug/l				<25	U	ug/l
Phenanthrene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Phenol	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Pyrene	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
bis(2-Chloroethoxy)methane	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
bis(2-Chloroethyl)ether	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
bis(2-Chloroisopropyl)ethe	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
bis(2-Ethylhexyl)phthalate	<10	U	ug/l	<10	U	ug/l				<10	U	ug/l
Total Dissolved Solids	630		mg/l	660		mg/l				510		mg/l

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Analytical Results at the FTA
for WG
Tinker Air Force Base

Well/Boring:	2-62B			2-62B			2-62B			2-63B		
Sample ID:	A1601			A1602			A1665			A1600		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Total Kjeldahl Nitrogen	0.38		mg/l	<0.25	U	mg/l				<0.25	U	mg/l
Total Organic Carbon	3.0		mg/l	3.0		mg/l				2.2		mg/l
Total Suspended Solids	190		mg/l	250		mg/l				750		mg/l
TPH - IR	<1.0	U	mg/l	<1.0	U	mg/l				<1.0	U	mg/l
1,1,1-Trichloroethane	<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
1,1,2,2-Tetrachloroethane	<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
1,1,2-Trichloroethane	9.0		ug/l	7.3		ug/l	<100	U	ug/l	<5	U	ug/l
1,1-Dichloroethane	<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
1,1-Dichloroethene	5.7		ug/l	6.0		ug/l	<100	U	ug/l	<5	U	ug/l
1,2-Dichloroethane	500		ug/l	550		ug/l	430		ug/l	1.2	J	ug/l
1,2-Dichloropropane	7.0		ug/l	7.3		ug/l	<100	U	ug/l	<5	U	ug/l
2-Butanone	<100	U	ug/l	<100	U	ug/l	<2000	U	ug/l	<100	U	ug/l
2-Chloroethylvinyl ether	<10	U	ug/l	<10	U	ug/l	<200	U	ug/l	<10	U	ug/l
2-Hexanone	<50	U	ug/l	<50	U	ug/l	<1000	U	ug/l	<50	U	ug/l
4-Methyl-2-Pentanone	<50	U	ug/l	<50	U	ug/l	<1000	U	ug/l	<50	U	ug/l
Acetone	<100	U	ug/l	<100	U	ug/l	230	J	ug/l	<100	U	ug/l
Benzene	5.4		ug/l	5.7		ug/l	<100	U	ug/l	<5	U	ug/l
Bromoform	<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
Bromomethane	<10	U	ug/l	<10	U	ug/l	<200	U	ug/l	<10	U	ug/l
Carbon Disulfide	<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
Carbon Tetrachloride	<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
Chlorobenzene	220		ug/l	240		ug/l	220		ug/l	<5	U	ug/l
Chlorodibromomethane	<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
Chloroethane	<10	U	ug/l	<10	U	ug/l	<200	U	ug/l	<10	U	ug/l
Chloroform	4.8	J	ug/l	4.8	J	ug/l	<100	U	ug/l	<5	U	ug/l
Chloromethane	<10	U	ug/l	<10	U	ug/l	<200	U	ug/l	<10	U	ug/l
Dichlorobromomethane	<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
Ethylbenzene	<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
Methylene Chloride	<10	U	ug/l	<10	U	ug/l	<200	U	ug/l	<10	U	ug/l
Styrene	<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
Tetrachloroethene	4.4	J	ug/l	4.7	J	ug/l	<100	U	ug/l	<5	U	ug/l

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Analytical Results at the FTA
for WG
Tinker Air Force Base

	Well/Boring:	2-62B			2-62B			2-62B			2-63B		
	Sample ID:	A1601			A1602			A1665			A1600		
	Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Parameters		Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Toluene		1.3	J	ug/l	1.5	J	ug/l	<100	U	ug/l	<5	U	ug/l
Trichloroethene		8300	D	ug/l	8900	D	ug/l	7900	D	ug/l	33		ug/l
Vinyl Acetate		<10	U	ug/l	<10	U	ug/l	<200	U	ug/l	<10	U	ug/l
Vinyl Chloride		<10	U	ug/l	<10	U	ug/l	<200	U	ug/l	<10	U	ug/l
Xylenes (total)		<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
cis 1,3 Dichloropropene		<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
cis-1,2-Dichloroethene		1600	D	ug/l	1700	D	ug/l	1300		ug/l	45		ug/l
trans 1,3-Dichloropropene		<5	U	ug/l	<5	U	ug/l	<100	U	ug/l	<5	U	ug/l
trans-1,2-Dichloroethene		130		ug/l	140		ug/l	<100	U	ug/l	<5	U	ug/l

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Analytical Results at the FTA
for WG
Tinker Air Force Base

Parameters	Well/Boring: 2-64B Sample ID: A1603 Depth: 0 - 0			2-65B A1604 0 - 0		
	Result	QFR	Units	Result	QFR	Units
Alkalinity, Titrimetric	380		mg/l as	500		mg/l as
Chemical Oxygen Demand	<25	U	mg/l	<25	U	mg/l
Chloride by Ion Chrom.	34		mg/l	57		mg/l
Nitrate and Nitrite	3.8		mg/l	2.6		mg/l
Phenolics	<0.010	U	mg/l	<0.010	U	mg/l
Silica	4.3		mg/l	11		mg/l
Sulfate by Ion Chrom.	24		mg/l	37		mg/l
Total Phosphorus	<0.10	U	mg/l	<0.10	U	mg/l
Aluminum	1.4		mg/l	0.95		mg/l
Arsenic - Graphite Furnace	<0.010	U	mg/l	<0.010	U	mg/l
Barium	0.23		mg/l	0.24		mg/l
Cadmium	<0.0050	UN	mg/l	<0.0050	UN	mg/l
Calcium	59	N	mg/l	80	N	mg/l
Chromium	<0.010	UN	mg/l	<0.010	UN	mg/l
Chromium VI	<0.010	U	mg/l	<0.010	U	mg/l
Copper	<0.025	UN	mg/l	<0.025	UN	mg/l
Iron	2.0		mg/l	1.1		mg/l
Lead - Graphite Furnace	<0.0030	U	mg/l	<0.0030	U	mg/l
Magnesium	33		mg/l	52		mg/l
Manganese	0.048	N	mg/l	0.065	N	mg/l
Mercury	<0.00020	U	mg/l	<0.00020	U	mg/l
Nickel	<0.040	UN	mg/l	<0.040	UN	mg/l
Potassium	<5.0	U	mg/l	1.7		mg/l
Selenium	<0.10	UN	mg/l	<0.10	UN	mg/l
Silver	<0.010	UN	mg/l	<0.010	UN	mg/l
Sodium	46		mg/l	43		mg/l
Zinc	<0.020	UN	mg/l	<0.020	UN	mg/l
1,2,4-Trichlorobenzene	<10	U	ug/l	<10	U	ug/l
1,2-Dichlorobenzene	<10	U	ug/l	<10	U	ug/l
1,3-Dichlorobenzene	<10	U	ug/l	<10	U	ug/l
1,4-Dichlorobenzene	<10	U	ug/l	<10	U	ug/l

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Analytical ...sults at the FTA
for WG
Tinker Air Force Base

	Well/Boring:	2-64B			2-65B		
	Sample ID:	A1603			A1604		
	Depth:	0 - 0			0 - 0		
Parameters		Result	QFR	Units	Result	QFR	Units
2,4,5-Trichlorophenol		<10	U	ug/l	<10	U	ug/l
2,4,6-Trichlorophenol		<10	U	ug/l	<10	U	ug/l
2,4-Dichlorophenol		<10	U	ug/l	<10	U	ug/l
2,4-Dimethylphenol		<10	U	ug/l	<10	U	ug/l
2,4-Dinitrophenol		<25	U	ug/l	<25	U	ug/l
2,4-Dinitrotoluene		<10	U	ug/l	<10	U	ug/l
2,6-Dinitrotoluene		<10	U	ug/l	<10	U	ug/l
2-Chloronaphthalene		<10	U	ug/l	<10	U	ug/l
2-Chlorophenol		<10	U	ug/l	<10	U	ug/l
2-Methylnaphthalene		<10	U	ug/l	<10	U	ug/l
2-Methylphenol		<10	U	ug/l	<10	U	ug/l
2-Nitroaniline		<25	U	ug/l	<25	U	ug/l
2-Nitrophenol		<10	U	ug/l	<10	U	ug/l
3,3'-Dichlorobenzidine		<10	U	ug/l	<10	U	ug/l
3-Nitroaniline		<25	U	ug/l	<25	U	ug/l
4,6-Dinitro-2-methylphenol		<25	U	ug/l	<25	U	ug/l
4-Bromophenyl-phenylether		<10	U	ug/l	<10	U	ug/l
4-Chloro-3-methylphenol		<10	U	ug/l	<10	U	ug/l
4-Chloroaniline		<10	U	ug/l	<10	U	ug/l
4-Chlorophenyl-phenylether		<10	U	ug/l	<10	U	ug/l
4-Methylphenol		<10	U	ug/l	<10	U	ug/l
4-Nitroaniline		<10	U	ug/l	<10	U	ug/l
4-Nitrophenol		<25	U	ug/l	<25	U	ug/l
Acenaphthene		<10	U	ug/l	<10	U	ug/l
Acenaphthylene		<10	U	ug/l	<10	U	ug/l
Anthracene		<10	U	ug/l	<10	U	ug/l
Benzo(a)anthracene		<10	U	ug/l	<10	U	ug/l
Benzo(a)pyrene		<10	U	ug/l	<10	U	ug/l
Benzo(b)fluoranthene		<10	U	ug/l	<10	U	ug/l
Benzo(g,h,i)perylene		<10	U	ug/l	<10	U	ug/l
Benzo(k)fluoranthene		<10	U	ug/l	<10	U	ug/l

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Analytical Results at the FTA
for WG
Tinker Air Force Base

	Well/Boring:	2-64B			2-65B		
	Sample ID:	A1603			A1604		
	Depth:	0 - 0			0 - 0		
Parameters		Result	QFR	Units	Result	QFR	Units
Benzoic Acid		<10	U	ug/l	<10	U	ug/l
Benzyl alcohol		<10	U	ug/l	<10	U	ug/l
Butylbenzylphthalate		<10	U	ug/l	<10	U	ug/l
Chrysene		<10	U	ug/l	<10	U	ug/l
Di-n-butylphthalate		<10	U	ug/l	<10	U	ug/l
Di-n-octylphthalate		<10	U	ug/l	<10	U	ug/l
Dibenzo(a,h)anthracene		<10	U	ug/l	<10	U	ug/l
Dibenzofuran		<10	U	ug/l	<10	U	ug/l
Diethylphthalate		<10	U	ug/l	<10	U	ug/l
Dimethylphthalate		<10	U	ug/l	<10	U	ug/l
Fluoranthene		<10	U	ug/l	<10	U	ug/l
Fluorene		<10	U	ug/l	<10	U	ug/l
Hexachlorobenzene		<10	U	ug/l	<10	U	ug/l
Hexachlorobutadiene		<10	U	ug/l	<10	U	ug/l
Hexachlorocyclopentadiene		<10	U	ug/l	<10	U	ug/l
Hexachloroethane		<10	U	ug/l	<10	U	ug/l
Indeno(1,2,3-cd)pyrene		<10	U	ug/l	<10	U	ug/l
Isophorone		<10	U	ug/l	<10	U	ug/l
N-Nitroso-di-n-propylamine		<10	U	ug/l	<10	U	ug/l
N-Nitrosodiphenylamine		<10	U	ug/l	<10	U	ug/l
Naphthalene		<10	U	ug/l	<10	U	ug/l
Nitrobenzene		<10	U	ug/l	<10	U	ug/l
Pentachlorophenol		<25	U	ug/l	<25	U	ug/l
Phenanthrene		<10	U	ug/l	<10	U	ug/l
Phenol		<10	U	ug/l	<10	U	ug/l
Pyrene		<10	U	ug/l	<10	U	ug/l
bis(2-Chloroethoxy)methane		<10	U	ug/l	<10	U	ug/l
bis(2-Chloroethyl)ether		<10	U	ug/l	<10	U	ug/l
bis(2-Chloroisopropyl)ethe		<10	U	ug/l	<10	U	ug/l
bis(2-Ethylhexyl)phthalate		<10	U	ug/l	<10	U	ug/l
Total Dissolved Solids		450		mg/l	650		mg/l

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Analytical Results at the FTA
for WG
Tinker Air Force Base

	Well/Boring:	2-64B			2-65B		
	Sample ID:	A1603			A1604		
	Depth:	0 - 0			0 - 0		
Parameters		Result	QFR	Units	Result	QFR	Units
Total Kjeldahl Nitrogen		<0.25	U	mg/l	<0.25	U	mg/l
Total Organic Carbon		1.2		mg/l	1.6		mg/l
Total Suspended Solids		160		mg/l	42		mg/l
TPH - IR		<1.0	U	mg/l	<1.0	U	mg/l
1,1,1-Trichloroethane		<5	U	ug/l	<5	U	ug/l
1,1,2,2-Tetrachloroethane		<5	U	ug/l	<5	U	ug/l
1,1,2-Trichloroethane		<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethane		<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethene		<5	U	ug/l	<5	U	ug/l
1,2-Dichloroethane		2.0	J	ug/l	<5	U	ug/l
1,2-Dichloropropane		<5	U	ug/l	<5	U	ug/l
2-Butanone		<100	U	ug/l	<100	U	ug/l
2-Chloroethylvinyl ether		<10	U	ug/l	<10	U	ug/l
2-Hexanone		<50	U	ug/l	<50	U	ug/l
4-Methyl-2-Pentanone		<50	U	ug/l	<50	U	ug/l
Acetone		<100	U	ug/l	<100	U	ug/l
Benzene		<5	U	ug/l	<5	U	ug/l
Bromoform		<5	U	ug/l	<5	U	ug/l
Bromomethane		<10	U	ug/l	<10	U	ug/l
Carbon Disulfide		<5	U	ug/l	<5	U	ug/l
Carbon Tetrachloride		<5	U	ug/l	<5	U	ug/l
Chlorobenzene		1.2	J	ug/l	<5	U	ug/l
Chlorodibromomethane		<5	U	ug/l	<5	U	ug/l
Chloroethane		<10	U	ug/l	<10	U	ug/l
Chloroform		<5	U	ug/l	<5	U	ug/l
Chloromethane		<10	U	ug/l	<10	U	ug/l
Dichlorobromomethane		<5	U	ug/l	<5	U	ug/l
Ethylbenzene		<5	U	ug/l	<5	U	ug/l
Methylene Chloride		<10	U	ug/l	<10	U	ug/l
Styrene		<5	U	ug/l	<5	U	ug/l
Tetrachloroethene		<5	U	ug/l	<5	U	ug/l

B = Analyte was also found in sample blank
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QFR = Qualifier
Analytical data has not been validated.

Analytical Results at the FTA
for WG
Tinker Air Force Base

Parameters	Well/Boring: 2-64B Sample ID: A1603 Depth: 0 - 0			Well/Boring: 2-65B Sample ID: A1604 Depth: 0 - 0		
	Result	QFR	Units	Result	QFR	Units
Toluene	<5	U	ug/l	<5	U	ug/l
Trichloroethene	96		ug/l	99		ug/l
Vinyl Acetate	<10	U	ug/l	<10	U	ug/l
Vinyl Chloride	<10	U	ug/l	<10	U	ug/l
Xylenes (total)	<5	U	ug/l	<5	U	ug/l
cis 1,3 Dichloropropene	<5	U	ug/l	<5	U	ug/l
cis-1,2-Dichloroethene	39		ug/l	24		ug/l
trans 1,3-Dichloropropene	<5	U	ug/l	<5	U	ug/l
trans-1,2-Dichloroethene	3.5	J	ug/l	<5	U	ug/l

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N = Sample is outside of Matrix Spike QC limit
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QFR = Qualifier
Analytical data has not been validated.

Analytical Results at the FTA
for WG
Tinker Air Force Base

Parameters	Well/Boring: 2-62A Sample ID: A1648 Depth: 0 - 0			Well/Boring: 2-63A Sample ID: A1607 Depth: 0 - 0			Well/Boring: 2-64A Sample ID: A1608 Depth: 0 - 0			Well/Boring: 2-65A Sample ID: A1609 Depth: 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Alkalinity, Titrimetric	390		mg/l	380		mg/l as	350		mg/l as	190		mg/l as
Chemical Oxygen Demand	<25	U	mg/l	<25	U	mg/l	<25	U	mg/l	<25	U	mg/l
Chloride by Ion Chrom.	9.9		mg/l	17		mg/l	26		mg/l	24		mg/l
Nitrate and Nitrite	5.3		mg/l	3.3		mg/l	1.1		mg/l	0.78		mg/l
Phenolics	<0.010	U	mg/l	<0.010	U	mg/l	<0.010	U	mg/l	<0.010	U	mg/l
Silica	11		mg/l	8.8		mg/l	8.6		mg/l	11		mg/l
Sulfate by Ion Chrom.	17		mg/l	17	N	mg/l	14	N	mg/l	24	N	mg/l
Total Phosphorus	<0.10	U	mg/l	0.19	N	mg/l	<0.10	UN	mg/l	3.9	N	mg/l
Aluminum	1.5		mg/l	32	N	mg/l	2.9	N	mg/l	2.8	N	mg/l
Arsenic - Graphite Furnace	<0.010	U	mg/l	0.018		mg/l	<0.010	U	mg/l	<0.010	U	mg/l
Barium	0.56		mg/l	3.7		mg/l	0.56		mg/l	<0.20	U	mg/l
Cadmium	<0.0050	U	mg/l	0.0066		mg/l	<0.0050	U	mg/l	<0.0050	U	mg/l
Calcium	68		mg/l	100		mg/l	61		mg/l	36		mg/l
Chromium	0.021		mg/l	0.12	N	mg/l	0.075	N	mg/l	0.053	N	mg/l
Chromium VI	<0.010	U	mg/l	<0.010	U	mg/l	<0.010	U	mg/l	<0.010	U	mg/l
Copper	<0.025	U	mg/l	0.10		mg/l	<0.025	U	mg/l	<0.025	U	mg/l
Iron	1.1		mg/l	57		mg/l	4.8		mg/l	4.3		mg/l
Lead - Graphite Furnace	<0.0030	U	mg/l	0.025		mg/l	0.0042		mg/l	<0.0030	U	mg/l
Magnesium	42		mg/l	57		mg/l	35		mg/l	19		mg/l
Manganese	0.016		mg/l	1.2	N	mg/l	0.12	N	mg/l	0.067	N	mg/l
Mercury	<0.00020	U	mg/l	<0.00020	U	mg/l	<0.00020	U	mg/l	<0.00020	U	mg/l
Nickel	<0.040	U	mg/l	0.079	N	mg/l	0.067	N	mg/l	<0.040	UN	mg/l
Potassium	<5.0	U	mg/l	7.3		mg/l	<5.0	U	mg/l	<5.0	U	mg/l
Selenium	<0.010	U	mg/l	<0.10	UN	mg/l	<0.10	UN	mg/l	<0.010	UN	mg/l
Silver	<0.010	U	mg/l	<0.010	U	mg/l	<0.010	U	mg/l	<0.010	U	mg/l
Sodium	45		mg/l	25		mg/l	23		mg/l	22		mg/l
Zinc	<0.020	U	mg/l	0.10	N	mg/l	0.021	N	mg/l	0.028	N	mg/l
1,2,4-Trichlorobenzene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
1,2-Dichlorobenzene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
1,3-Dichlorobenzene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
1,4-Dichlorobenzene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l

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Analytical . ults at the FTA
for WG
Tinker Air Force Base

Well/Boring:	2-62A			2-63A			2-64A			2-65A		
Sample ID:	A1648			A1607			A1608			A1609		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
2,4,5-Trichlorophenol	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2,4,6-Trichlorophenol	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2,4-Dichlorophenol	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2,4-Dimethylphenol	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2,4-Dinitrophenol	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l
2,4-Dinitrotoluene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2,6-Dinitrotoluene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2-Chloronaphthalene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2-Chlorophenol	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2-Methylnaphthalene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2-Methylphenol	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2-Nitroaniline	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l
2-Nitrophenol	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
3,3'-Dichlorobenzidine	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
3-Nitroaniline	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l
4,6-Dinitro-2-methylphenol	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l
4-Bromophenyl-phenylether	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
4-Chloro-3-methylphenol	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
4-Chloroaniline	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
4-Chlorophenyl-phenylether	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
4-Methylphenol	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
4-Nitroaniline	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
4-Nitrophenol	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l
Acenaphthene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Acenaphthylene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Anthracene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Benzo(a)anthracene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Benzo(a)pyrene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Benzo(b)fluoranthene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Benzo(g,h,i)perylene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Benzo(k)fluoranthene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l

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Analytical results at the FTA
for WG
Tinker Air Force Base

Parameters	Well/Boring: 2-62A Sample ID: A1648 Depth: 0 - 0			Well/Boring: 2-63A Sample ID: A1607 Depth: 0 - 0			Well/Boring: 2-64A Sample ID: A1608 Depth: 0 - 0			Well/Boring: 2-65A Sample ID: A1609 Depth: 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Benzoic Acid	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Benzyl alcohol	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Butylbenzylphthalate	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Chrysene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Di-n-butylphthalate	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Di-n-octylphthalate	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Dibenzo(a,h)anthracene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Dibenzofuran	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Diethylphthalate	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Dimethylphthalate	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Fluoranthene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Fluorene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Hexachlorobenzene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Hexachlorobutadiene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Hexachlorocyclopentadiene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Hexachloroethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Indeno(1,2,3-cd)pyrene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Isophorone	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
N-Nitroso-di-n-propylamine	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
N-Nitrosodiphenylamine	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Naphthalene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Nitrobenzene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Pentachlorophenol	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l	<25	U	ug/l
Phenanthrene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Phenol	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Pyrene	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
bis(2-Chloroethoxy)methane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
bis(2-Chloroethyl)ether	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
bis(2-Chloroisopropyl)ethe	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
bis(2-Ethylhexyl)phthalate	1.2	J	ug/l	<10	U	ug/l	<10	U	ug/l	1.4	JB	ug/l
Total Dissolved Solids	450		mg/l	190		mg/l	388		mg/l	258		mg/l

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Analytical results at the FTA
for WG
Tinker Air Force Base

Well/Boring:	2-62A			2-63A			2-64A			2-65A		
Sample ID:	A1648			A1607			A1608			A1609		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Total Kjeldahl Nitrogen	<0.25	U	mg/l	<0.25	UN	mg/l	<0.25	UN	mg/l	0.26	N	mg/l
Total Organic Carbon	<1.0	U	mg/l	<1.0	U	mg/l	<1.0	U	mg/l	<1.0	U	mg/l
Total Suspended Solids	45		mg/l	1900		mg/l	200		mg/l	<10	U	mg/l
TPH - IR	<0.96	U	mg/l	<0.96	U	mg/l	<0.96	U	mg/l	<0.96	U	mg/l
1,1,1-Trichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1,2,2-Tetrachloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1,2-Trichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,2-Dichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,2-Dichloropropane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
2-Butanone	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l
2-Chloroethylvinyl ether	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2-Hexanone	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l
4-Methyl-2-Pentanone	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l
Acetone	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l
Benzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Bromoform	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Bromomethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Carbon Disulfide	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Carbon Tetrachloride	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chlorobenzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chlorodibromomethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chloroethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Chloroform	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chloromethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Dichlorobromomethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Ethylbenzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Methylene Chloride	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Styrene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Tetrachloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l

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Analytical results at the FTA
for WG
Tinker Air Force Base

Parameters	Well/Boring: 2-62A Sample ID: A1648 Depth: 0 - 0			2-63A A1607 0 - 0			2-64A A1608 0 - 0			2-65A A1609 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Toluene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Trichloroethene	1.5	J	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Vinyl Acetate	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Vinyl Chloride	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Xylenes (total)	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
cis 1,3 Dichloropropene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
cis-1,2-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
trans 1,3-Dichloropropene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
trans-1,2-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l

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ANALYTICAL RESULTS

QUALITY CONTROL - SOIL

Analytical QC results at the FTA
for SQ
Tinker Air Force Base

Well/Boring:	2-62A			2-62A			2-63A			2-63A			2-64A		
Sample ID:	A1561-MS			A1561-MSD			A1555-MS			A1555-MSD			A1548-MS		
Depth:	2 - 3			2 - 3			2 - 3			2 - 3			2 - 3		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	475		%rec	472		%rec	951		%rec	1406		%rec	1371		%rec
Arsenic - Graphite Furnace	100		%rec	110		%rec	96		%rec	67		%rec	100		%rec
Barium	0		%rec	0		%rec	0		%rec	0		%rec	905		%rec
Beryllium	89		%rec	88		%rec	92		%rec	89		%rec	89		%rec
Cadmium	85		%rec	85		%rec	89		%rec	87		%rec	85		%rec
Chromium	89		%rec	90		%rec	90		%rec	97		%rec	95		%rec
Chromium VI	116		%rec	101		%rec	97		%rec	90		%rec	101		%rec
Copper	88		%rec	88		%rec	83		%rec	86		%rec	91		%rec
Iron	0		%rec	154		%rec	231		%rec	500		%rec	548		%rec
Lead - Graphite Furnace	210		%rec	130		%rec	162		%rec	73		%rec	143		%rec
Mercury	115		%rec	115		%rec	110		%rec	110		%rec	110		%rec
Nickel	82		%rec	84		%rec	80		%rec	81		%rec	90		%rec
Silver	85		%rec	84		%rec	87		%rec	84		%rec	85		%rec
Zinc	82		%rec	83		%rec	90		%rec	91		%rec	94		%rec
1,2,4-Trichlorobenzene	52		%rec	68		%rec							80		%rec
1,4-Dichlorobenzene	47		%rec	68		%rec							79		%rec
2,4,6-Tribromophenol	58		%rec	47		%rec							71		%rec
2,4-Dinitrotoluene	62		%rec	52		%rec							68		%rec
2-Chlorophenol	68		%rec	68		%rec							80		%rec
2-Fluorobiphenyl	61		%rec	71		%rec							69		%rec
2-Fluorophenol	54		%rec	57		%rec							65		%rec
4-Chloro-3-methylphenol	64		%rec	57		%rec							72		%rec
4-Nitrophenol	57		%rec	49		%rec							63		%rec
Acenaphthene	63		%rec	69		%rec							82		%rec
N-Nitroso-di-n-propylamine	61		%rec	60		%rec							76		%rec
Nitrobenzene-D5	51		%rec	59		%rec							68		%rec
Pentachlorophenol	34		%rec	34		%rec							79		%rec
Phenol	63		%rec	63		%rec							75		%rec
Phenol-D5	64		%rec	61		%rec							74		%rec
Pyrene	86		%rec	67		%rec							79		%rec
Terphenyl-D14	67		%rec	60		%rec							72		%rec

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Analytical QC results at the FTA
for SQ
Tinker Air Force Base

Well/Boring:	2-62A			2-62A			2-63A			2-63A			2-64A		
Sample ID:	A1561-MS			A1561-MSD			A1555-MS			A1555-MSD			A1548-MS		
Depth:	2 - 3			2 - 3			2 - 3			2 - 3			2 - 3		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
1,1,1-Trichloroethane															
1,1,2,2-Tetrachloroethane															
1,1,2-Trichloroethane															
1,1-Dichloroethane															
1,1-Dichloroethene	101		%rec	101		%rec	103		%rec	101		%rec	103		%rec
1,2-Dichloroethane															
1,2-Dichloroethane-D4	99		%rec	101		%rec	106		%rec	108		%rec	105		%rec
1,2-Dichloropropane															
2-Butanone															
2-Chloroethylvinyl ether															
2-Hexanone				<50	U	%rec									
4-Methyl-2-Pentanone															
Acetone															
Benzene	93		%rec	92		%rec	97		%rec	97		%rec	102		%rec
Bromofluorobenzene	97		%rec	97		%rec	96		%rec	99		%rec	98		%rec
Bromoform															
Bromomethane															
Carbon Disulfide															
Carbon Tetrachloride															
Chlorobenzene	94		%rec	93		%rec	96		%rec	98		%rec	96		%rec
Chlorodibromomethane															
Chloroethane															
Chloroform															
Chloromethane															
Dichlorobromomethane															
Ethylbenzene															
Methylene Chloride															
Styrene															
Tetrachloroethene															
Toluene	94		%rec	94		%rec	96		%rec	98		%rec	98		%rec
Toluene-D8	102		%rec	101		%rec	102		%rec	106		%rec	103		%rec

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Analytical QC results at the FTA
for SQ
Tinker Air Force Base

	Well/Boring:	2-62A			2-62A			2-63A			2-63A			2-64A		
	Sample ID:	A1561-MS			A1561-MSD			A1555-MS			A1555-MSD			A1548-MS		
	Depth:	2 - 3			2 - 3			2 - 3			2 - 3			2 - 3		
Parameters		Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Trichloroethene		79		%rec	79		%rec	82		%rec	82		%rec	91		%rec
Vinyl Acetate																
Vinyl Chloride																
Xylenes (total)																
cis 1,3 Dichloropropene																
cis-1,2-Dichloroethene																
trans 1,3-Dichloropropene																
trans-1,2-Dichloroethene																

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Analytical QC Results at the FTA
for SQ
Tinker Air Force Base

Well/Boring:	2-64A			2-65A			2-65A			FIELDQC		
Sample ID:	A1548-MSD			A1540-MS			A1540-MSD			A1547		
Depth:	2 - 3			2.5 - 3.5			2.5 - 3.5			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Aluminum	1155		%rec	1296		%rec	1122		%rec			
Arsenic - Graphite Furnace	99		%rec	116		%rec	117		%rec			
Barium	1358		%rec	338		%rec	124		%rec			
Beryllium	89		%rec	87		%rec	87		%rec			
Cadmium	86		%rec	82		%rec	82		%rec			
Chromium	93		%rec	95		%rec	94		%rec			
Chromium VI	95		%rec	92		%rec	92		%rec			
Copper	90		%rec	87		%rec	87		%rec			
Iron	448		%rec	789		%rec	688		%rec			
Lead - Graphite Furnace	129		%rec	190		%rec	256		%rec			
Mercury	110		%rec	110		%rec	120		%rec			
Nickel	89		%rec	86		%rec	83		%rec			
Silver	86		%rec	82		%rec	82		%rec			
Zinc	92		%rec	92		%rec	90		%rec			
1,2,4-Trichlorobenzene	79		%rec	46		%rec	34		%rec			
1,4-Dichlorobenzene	74		%rec	40		%rec	29		%rec			
2,4,6-Tribromophenol	65		%rec	83		%rec	73		%rec			
2,4-Dinitrotoluene	70		%rec	40		%rec	36		%rec			
2-Chlorophenol	77		%rec	98		%rec	76		%rec			
2-Fluorobiphenyl	65		%rec	101		%rec	85		%rec			
2-Fluorophenol	62		%rec	75		%rec	63		%rec			
4-Chloro-3-methylphenol	72		%rec	97		%rec	79		%rec			
4-Nitrophenol	65		%rec	77		%rec	56		%rec			
Acenaphthene	78		%rec	56		%rec	49		%rec			
N-Nitroso-di-n-propylamine	76		%rec	52		%rec	39		%rec			
Nitrobenzene-D5	68		%rec	90		%rec	68		%rec			
Pentachlorophenol	79		%rec	80		%rec	63		%rec			
Phenol	71		%rec	76		%rec	69		%rec			
Phenol-D5	72		%rec	81		%rec	70		%rec			
Pyrene	78		%rec	45		%rec	43		%rec			
Terphenyl-D14	71		%rec	80		%rec	76		%rec			

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Analytical QC results at the FTA
for SQ
Tinker Air Force Base

Parameters	Well/Boring: 2-64A Sample ID: A1548-MSD Depth: 2 - 3			2-65A A1540-MS 2.5 - 3.5			2-65A A1540-MSD 2.5 - 3.5			FIELDQC A1547 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
1,1,1-Trichloroethane										<5	U	ug/l
1,1,2,2-Tetrachloroethane										<5	U	ug/l
1,1,2-Trichloroethane										<5	U	ug/l
1,1-Dichloroethane										<5	U	ug/l
1,1-Dichloroethene	106		%rec	95		%rec	94		%rec	<5	U	ug/l
1,2-Dichloroethane										<5	U	ug/l
1,2-Dichloroethane-D4	104		%rec	105		%rec	107		%rec	102		%rec
1,2-Dichloropropane										<5	U	ug/l
2-Butanone										<100	U	ug/l
2-Chloroethylvinyl ether										<10	U	ug/l
2-Hexanone										<50	U	ug/l
4-Methyl-2-Pentanone										<50	U	ug/l
Acetone										<100	U	ug/l
Benzene	102		%rec	104		%rec	105		%rec	<5	U	ug/l
Bromofluorobenzene	98		%rec	93		%rec	92		%rec	92		%rec
Bromoform										<5	U	ug/l
Bromomethane										<10	U	ug/l
Carbon Disulfide										<5	U	ug/l
Carbon Tetrachloride										<5	U	ug/l
Chlorobenzene	99		%rec	107		%rec	108		%rec	<5	U	ug/l
Chlorodibromomethane										3.4	J	ug/l
Chloroethane										<10	U	ug/l
Chloroform										<5	U	ug/l
Chloromethane										<10	U	ug/l
Dichlorobromomethane										<5	U	ug/l
Ethylbenzene										<5	U	ug/l
Methylene Chloride										<10	U	ug/l
Styrene										<5	U	ug/l
Tetrachloroethene										<5	U	ug/l
Toluene	101		%rec	105		%rec	108		%rec	<5	U	ug/l
Toluene-D8	105		%rec	103		%rec	108		%rec	96		%rec

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Analytical QC results at the FTA
for SQ
Tinker Air Force Base

	Well/Boring:	2-64A			2-65A			2-65A			FIELDQC		
	Sample ID:	A1548-MSD			A1540-MS			A1540-MSD			A1547		
	Depth:	2 - 3			2.5 - 3.5			2.5 - 3.5			0 - 0		
Parameters		Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Trichloroethene		87		%rec	85		%rec	87		%rec	<5	U	ug/l
Vinyl Acetate											<10	U	ug/l
Vinyl Chloride											<10	U	ug/l
Xylenes (total)											<5	U	ug/l
cis 1,3 Dichloropropene											<5	U	ug/l
cis-1,2-Dichloroethene											<5	U	ug/l
trans 1,3-Dichloropropene											<5	U	ug/l
trans-1,2-Dichloroethene											<5	U	ug/l

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ANALYTICAL RESULTS

QUALITY CONTROL - WATER

Analytical QC results at the FTA
for WQ
Tinker Air Force Base

Well/Boring:	2-62A			2-62A			2-65A			2-65A			2-65B		
Sample ID:	A1648-MS			A1648-MSD			A1609-MS			A1609-MSD			A1604-MS		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Alkalinity, Titrimetric	390		mg/l	390		mg/l	190		mg/l as	190		mg/l as	510		mg/l as
Chemical Oxygen Demand	101		%rec	104		%rec	106		%rec	110		%rec	106		%rec
Chloride by Ion Chrom.	93		%rec	89		%rec	90		%rec	91		%rec	99		%rec
Nitrate and Nitrite	90		%rec	91		%rec	110		%rec	99		%rec	96		%rec
Phenolics	95		%rec	87		%rec	78		%rec	81		%rec	90		%rec
Silica	126		%rec	126		%rec	94		%rec	108		%rec	93		%rec
Sulfate by Ion Chrom.	84		%rec	81		%rec	79		%rec	69		%rec	86		%rec
Total Phosphorus	105		%rec	104		%rec	0		%rec	0		%rec	99		%rec
Aluminum	101		%rec	101		%rec	120		%rec	133		%rec	100		%rec
Arsenic - Graphite Furnace	109		%rec	108		%rec	94		%rec	107		%rec	93		%rec
Barium	97		%rec	100		%rec	106		%rec	105		%rec	86		%rec
Beryllium															
Cadmium	97		%rec	98		%rec	81		%rec	81		%rec	79		%rec
Calcium	109		%rec	130		%rec	97		%rec	97		%rec	121		%rec
Chromium	97		%rec	97		%rec	81		%rec	79		%rec	80		%rec
Chromium VI	102		%rec	98		%rec	102		%rec	104		%rec	98		%rec
Copper	96		%rec	96		%rec	82		%rec	80		%rec	80		%rec
Iron	99		%rec	100		%rec	85		%rec	100		%rec	90		%rec
Lead - Graphite Furnace	96		%rec	97		%rec	106		%rec	124		%rec	101		%rec
Magnesium	104		%rec	117		%rec	96		%rec	96		%rec	111		%rec
Manganese	94		%rec	94		%rec	77		%rec	77		%rec	79		%rec
Mercury	123		%rec	124		%rec	116		%rec	118		%rec	111		%rec
Nickel	94		%rec	95		%rec	81		%rec	79		%rec	77		%rec
Potassium	111		%rec	113		%rec	102		%rec	102		%rec	96		%rec
Selenium	99		%rec	99		%rec	81		%rec	78		%rec	72		%rec
Silver	95		%rec	95		%rec	82		%rec	80		%rec	80		%rec
Sodium	65		%rec	77		%rec	96		%rec	92		%rec	99		%rec
Zinc	96		%rec	96		%rec	80		%rec	79		%rec	79		%rec
1,2,4-Trichlorobenzene	80		%rec	84		%rec	86		%rec	87		%rec	73		%rec
1,2-Dichlorobenzene															
1,3-Dichlorobenzene															

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Analytical QC results at the FTA
for WQ
Tinker Air Force Base

Well/Boring:	2-62A			2-62A			2-65A			2-65A			2-65B		
Sample ID:	A1648-MS			A1648-MSD			A1609-MS			A1609-MSD			A1604-MS		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
1,4-Dichlorobenzene	85		%rec	91		%rec	81		%rec	83		%rec	71		%rec
2,4,5-Trichlorophenol															
2,4,6-TRIBROMOPHENOL	90		%rec	92		%rec	98		%rec	89		%rec	65		%rec
2,4,6-Tribromophenol															
2,4,6-Trichlorophenol															
2,4-Dichlorophenol															
2,4-Dimethylphenol															
2,4-Dinitrophenol															
2,4-Dinitrotoluene	94		%rec	94		%rec	81		%rec	77		%rec	69		%rec
2,6-Dinitrotoluene															
2-Chloronaphthalene															
2-Chlorophenol	92		%rec	90		%rec	90		%rec	94		%rec	90		%rec
2-FLUOROBIPHENYL	82		%rec	84		%rec	90		%rec	86		%rec	73		%rec
2-FLUOROPHENOL	58		%rec	61		%rec	77		%rec	80		%rec	74		%rec
2-Fluorobiphenyl															
2-Fluorophenol															
2-Methylnaphthalene															
2-Methylphenol															
2-Nitroaniline															
2-Nitrophenol															
3,3'-Dichlorobenzidine															
3-Nitroaniline															
4,6-Dinitro-2-methylphenol															
4-Bromophenyl-phenylether															
4-Chloro-3-methylphenol	94		%rec	97		%rec	92		%rec	85		%rec	88		%rec
4-Chloroaniline															
4-Chlorophenyl-phenylether															
4-Methylphenol															
4-Nitroaniline															
4-Nitrophenol	36		%rec	37		%rec	89		%rec	84		%rec	73		%rec
Acenaphthene	102		%rec	102		%rec	93		%rec	87		%rec	86		%rec

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Analytical QC results at the FTA
for WQ
Tinker Air Force Base

Parameters	Well/Boring: 2-62A Sample ID: A1648-MS Depth: 0 - 0			Well/Boring: 2-62A Sample ID: A1648-MSD Depth: 0 - 0			Well/Boring: 2-65A Sample ID: A1609-MS Depth: 0 - 0			Well/Boring: 2-65A Sample ID: A1609-MSD Depth: 0 - 0			Well/Boring: 2-65B Sample ID: A1604-MS Depth: 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Acenaphthylene															
Anthracene															
Benzo(a)anthracene															
Benzo(a)pyrene															
Benzo(b)fluoranthene															
Benzo(g,h,i)perylene															
Benzo(k)fluoranthene															
Benzoic Acid															
Benzyl alcohol															
Butylbenzylphthalate															
Chrysene															
Di-n-butylphthalate															
Di-n-octylphthalate															
Dibenzo(a,h)anthracene															
Dibenzofuran															
Diethylphthalate															
Dimethylphthalate															
Fluoranthene															
Fluorene															
Hexachlorobenzene															
Hexachlorobutadiene															
Hexachlorocyclopentadiene															
Hexachloroethane															
Indeno(1,2,3-cd)pyrene															
Isophorone															
N-Nitroso-di-n-propylamine	103		%rec	101		%rec	79		%rec	80		%rec	83		%rec
N-Nitrosodiphenylamine															
NITROBENZENE-D5	97		%rec	97		%rec	92		%rec	85		%rec	91		%rec
Naphthalene															
Nitrobenzene															
Nitrobenzene-D5															

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Analytical QC results at the FTA
for WQ
Tinker Air Force Base

Parameters	Well/Boring: 2-62A Sample ID: A1648-MS Depth: 0 - 0			2-62A A1648-MSD 0 - 0			2-65A A1609-MS 0 - 0			2-65A A1609-MSD 0 - 0			2-65B A1604-MS 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
PHENOL-D5	40		%rec	40		%rec	79		%rec	79		%rec	80		%rec
Pentachlorophenol	90		%rec	92		%rec	113		%rec	101		%rec	68		%rec
Phenanthrene															
Phenol	38		%rec	39		%rec	82		%rec	86		%rec	83		%rec
Phenol-D5															
Pyrene	123		%rec	124		%rec	92		%rec	95		%rec	90		%rec
TERPHENYL-D14	113		%rec	114		%rec	85		%rec	83		%rec	84		%rec
Terphenyl-D14															
bis(2-Chloroethoxy)methane															
bis(2-Chloroethyl)ether															
bis(2-Chloroisopropyl)ethe															
bis(2-Ethylhexyl)phthalate															
Total Dissolved Solids	440		mg/l	440		mg/l	260		mg/l	260		mg/l	620		mg/l
Total Kjeldahl Nitrogen	100		%rec	102		%rec	82		%rec	68		%rec	92		%rec
Total Organic Carbon	102		%rec	99		%rec	114		%rec	0		%rec	114		%rec
Total Suspended Solids	47		mg/l	48		mg/l	140		mg/l	140		mg/l	38		mg/l
TPH - IR	87		%rec	88		%rec	95		%rec	100		%rec	90		%rec
1,1,1-Trichloroethane															
1,1,2,2-Tetrachloroethane															
1,1,2-Trichloroethane															
1,1-Dichloroethane															
1,1-Dichloroethene	88		%rec	84		%rec	109		%rec	103		%rec	100		%rec
1,2-Dichloroethane															
1,2-Dichloroethane-D4	104		%rec	107		%rec	96		%rec	94		%rec	99		%rec
1,2-Dichloropropane															
2-Butanone															
2-Chloroethylvinyl ether															
2-Hexanone															
4-Methyl-2-Pentanone															
Acetone															
Benzene	91		%rec	88		%rec	102		%rec	103		%rec	97		%rec

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Analytical QC results at the FTA
for WQ
Tinker Air Force Base

Parameters	Well/Boring: 2-62A Sample ID: A1648-MS Depth: 0 - 0			2-62A A1648-MSD 0 - 0			2-65A A1609-MS 0 - 0			2-65A A1609-MSD 0 - 0			2-65B A1604-MS 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Bromofluorobenzene	97		%rec	93		%rec	102		%rec	102		%rec	98		%rec
Bromoform															
Bromomethane															
Carbon Disulfide															
Carbon Tetrachloride															
Chlorobenzene	100		%rec	97		%rec	101		%rec	102		%rec	95		%rec
Chlorodibromomethane															
Chloroethane															
Chloroform															
Chloromethane															
Dichlorobromomethane															
Ethylbenzene															
Methylene Chloride															
Styrene															
Tetrachloroethene															
Toluene	100		%rec	96		%rec	100		%rec	101		%rec	93		%rec
Toluene-D8	100		%rec	98		%rec	104		%rec	102		%rec	96		%rec
Trichloroethene	88		%rec	84		%rec	99		%rec	99		%rec	85		%rec
Vinyl Acetate															
Vinyl Chloride															
Xylenes (total)															
cis 1,3 Dichloropropene															
cis-1,2-Dichloroethene															
trans 1,3-Dichloropropene															
trans-1,2-Dichloroethene															

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Analytical QC results at the FTA
for WQ
Tinker Air Force Base

Parameters	Well/Boring: 2-65B Sample ID: A1604-MSD Depth: 0 - 0			FIELDQC A1553 0 - 0			FIELDQC A1554 0 - 0			FIELDQC A1560 0 - 0			FIELDQC A1566 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Alkalinity, Titrimetric	490		mg/l as												
Chemical Oxygen Demand	104		%rec												
Chloride by Ion Chrom.	97		%rec												
Nitrate and Nitrite	94		%rec												
Phenolics	85		%rec												
Silica	81		%rec												
Sulfate by Ion Chrom.	79		%rec												
Total Phosphorus	96		%rec												
Aluminum	92		%rec				<0.20	U	mg/l						
Arsenic - Graphite Furnace	93		%rec				<0.010	U	mg/l						
Barium	81		%rec				<0.20	U	mg/l						
Beryllium							<0.0050	U	mg/l						
Cadmium	76		%rec				<0.0050	U	mg/l						
Calcium	95		%rec												
Chromium	76		%rec				<0.010	U	mg/l						
Chromium VI	98		%rec				<0.010	U	mg/l						
Copper	76		%rec				<0.0250	U	mg/l						
Iron	84		%rec				<0.10	U	mg/l						
Lead - Graphite Furnace	98		%rec				<0.0030	U	mg/l						
Magnesium	93		%rec												
Manganese	74		%rec												
Mercury	112		%rec				<0.00020	U	mg/l						
Nickel	74		%rec				<0.040	U	mg/l						
Potassium	92		%rec												
Selenium	72		%rec												
Silver	76		%rec				<0.010	U	mg/l						
Sodium	84		%rec												
Zinc	75		%rec				<0.020	U	mg/l						
1,2,4-Trichlorobenzene	80		%rec				<10	U	ug/l						
1,2-Dichlorobenzene							<10	U	ug/l						
1,3-Dichlorobenzene							<10	U	ug/l						

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Analytical QC results at the FTA
for WQ
Tinker Air Force Base

Parameters	Well/Boring: 2-65B Sample ID: A1604-MSD Depth: 0 - 0			FIELDQC A1553 0 - 0			FIELDQC A1554 0 - 0			FIELDQC A1560 0 - 0			FIELDQC A1566 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
1,4-Dichlorobenzene	78		%rec				<10	U	ug/l						
2,4,5-Trichlorophenol							<10	U	ug/l						
2,4,6-TRIBROMOPHENOL	73		%rec												
2,4,6-Tribromophenol							37		%rec						
2,4,6-Trichlorophenol							<10	U	ug/l						
2,4-Dichlorophenol							<10	U	ug/l						
2,4-Dimethylphenol							<10	U	ug/l						
2,4-Dinitrophenol							<25	U	ug/l						
2,4-Dinitrotoluene	69		%rec				<10	U	ug/l						
2,6-Dinitrotoluene							<10	U	ug/l						
2-Chloronaphthalene							<10	U	ug/l						
2-Chlorophenol	93		%rec				<10	U	ug/l						
2-FLUOROBIPHENYL	76		%rec												
2-FLUOROPHENOL	76		%rec												
2-Fluorobiphenyl							31		%rec						
2-Fluorophenol							29		%rec						
2-Methylnaphthalene							<10	U	ug/l						
2-Methylphenol							<10	U	ug/l						
2-Nitroaniline							<25	U	ug/l						
2-Nitrophenol							<10	U	ug/l						
3,3'-Dichlorobenzidine							<10	U	ug/l						
3-Nitroaniline							<25	U	ug/l						
4,6-Dinitro-2-methylphenol							<25	U	ug/l						
4-Bromophenyl-phenylether							<10	U	ug/l						
4-Chloro-3-methylphenol	92		%rec				<10	U	ug/l						
4-Chloroaniline							<10	U	ug/l						
4-Chlorophenyl-phenylether							<10	U	ug/l						
4-Methylphenol							<10	U	ug/l						
4-Nitroaniline							<10	U	ug/l						
4-Nitrophenol	78		%rec				<25	U	ug/l						
Acenaphthene	88		%rec				<10	U	ug/l						

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Analytical QC results at the FTA
for WQ
Tinker Air Force Base

Parameters	Well/Boring: 2-65B Sample ID: A1604-MSD Depth: 0 - 0			FIELDQC A1553 0 - 0			FIELDQC A1554 0 - 0			FIELDQC A1560 0 - 0			FIELDQC A1566 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Acenaphthylene							<10	U	ug/l						
Anthracene							<10	U	ug/l						
Benzo(a)anthracene							<10	U	ug/l						
Benzo(a)pyrene							<10	U	ug/l						
Benzo(b)fluoranthene							<10	U	ug/l						
Benzo(g,h,i)perylene							<10	U	ug/l						
Benzo(k)fluoranthene							<10	U	ug/l						
Benzoic Acid							<10	U	ug/l						
Benzyl alcohol							<10	U	ug/l						
Butylbenzylphthalate							<10	U	ug/l						
Chrysene							<10	U	ug/l						
Di-n-butylphthalate							<10	U	ug/l						
Di-n-octylphthalate							<10	U	ug/l						
Dibenzo(a,h)anthracene							<10	U	ug/l						
Dibenzofuran							<10	U	ug/l						
Diethylphthalate							<10	U	ug/l						
Dimethylphthalate							<10	U	ug/l						
Fluoranthene							<10	U	ug/l						
Fluorene							<10	U	ug/l						
Hexachlorobenzene							<10	U	ug/l						
Hexachlorobutadiene							<10	U	ug/l						
Hexachlorocyclopentadiene							<10	U	ug/l						
Hexachloroethane							<10	U	ug/l						
Indeno(1,2,3-cd)pyrene							<10	U	ug/l						
Isophorone							<10	U	ug/l						
N-Nitroso-di-n-propylamine	85		%rec				<10	U	ug/l						
N-Nitrosodiphenylamine							<10	U	ug/l						
NITROBENZENE-D5	97		%rec												
Naphthalene							<10	U	ug/l						
Nitrobenzene							<10	U	ug/l						
Nitrobenzene-D5							32		%rec						

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Analytical QC results at the FTA
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Tinker Air Force Base

Parameters	Well/Boring: 2-65B Sample ID: A1604-MSD Depth: 0 - 0			FIELDQC A1553 0 - 0			FIELDQC A1554 0 - 0			FIELDQC A1560 0 - 0			FIELDQC A1566 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
PHENOL-D5	76		%rec												
Pentachlorophenol	78		%rec				<25	U	ug/l						
Phenanthrene							<10	U	ug/l						
Phenol	86		%rec				<10	U	ug/l						
Phenol-D5							29		%rec						
Pyrene	92		%rec				<10	U	ug/l						
TERPHENYL-D14	83		%rec												
Terphenyl-D14							40		%rec						
bis(2-Chloroethoxy)methane							<10	U	ug/l						
bis(2-Chloroethyl)ether							<10	U	ug/l						
bis(2-Chloroisopropyl)ethe							<10	U	ug/l						
bis(2-Ethylhexyl)phthalate							<10	U	ug/l						
Total Dissolved Solids	620		mg/l												
Total Kjeldahl Nitrogen	94		%rec												
Total Organic Carbon	107		%rec												
Total Suspended Solids	40		mg/l												
TPH - IR	92		%rec												
1,1,1-Trichloroethane				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1,2,2-Tetrachloroethane				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1,2-Trichloroethane				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethane				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethene	100		%rec	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,2-Dichloroethane				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,2-Dichloroethane-D4	99		%rec	104		%rec	104		%rec	103		%rec	107		%rec
1,2-Dichloropropane				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
2-Butanone				<100	U	ug/l	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l
2-Chloroethylvinyl ether				<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2-Hexanone				<50	U	ug/l	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l
4-Methyl-2-Pentanone				<50	U	ug/l	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l
Acetone				<100	U	ug/l	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l
Benzene	98		%rec	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l

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Analytical QC results at the FTA
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Tinker Air Force Base

Parameters	Well/Boring: 2-65B Sample ID: A1604-MSD Depth: 0 - 0			FIELDQC A1553 0 - 0			FIELDQC A1554 0 - 0			FIELDQC A1560 0 - 0			FIELDQC A1566 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Bromofluorobenzene	96		%rec	98		%rec	100		%rec	101		%rec	99		%rec
Bromoform				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Bromomethane				<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Carbon Disulfide				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Carbon Tetrachloride				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chlorobenzene	95		%rec	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chlorodibromomethane				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chloroethane				<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Chloroform				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chloromethane				<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Dichlorobromomethane				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Ethylbenzene				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Methylene Chloride				<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Styrene				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Tetrachloroethene				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Toluene	94		%rec	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Toluene-D8	96		%rec	96		%rec	98		%rec	98		%rec	98		%rec
Trichloroethene	85		%rec	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Vinyl Acetate				<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Vinyl Chloride				<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Xylenes (total)				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
cis 1,3 Dichloropropene				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
cis-1,2-Dichloroethene				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
trans 1,3-Dichloropropene				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
trans-1,2-Dichloroethene				<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l

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Analytical QC results at the FTA
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Tinker Air Force Base

Well/Boring:	FIELDQC			FIELDQC			FIELDQC			FIELDQC		
Sample ID:	A1599			A1605			A1606			A1666		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Alkalinity, Titrimetric				450		mg/l as						
Chemical Oxygen Demand				<25	U	mg/l						
Chloride by Ion Chrom.				<1.0	U	mg/l						
Nitrate and Nitrite				<0.050	U	mg/l						
Phenolics				<0.010	U	mg/l						
Silica				<0.20	U	mg/l						
Sulfate by Ion Chrom.				<1.0	U	mg/l						
Total Phosphorus				<0.10	U	mg/l						
Aluminum				<0.20	U	mg/l						
Arsenic - Graphite Furnace				<0.010	U	mg/l						
Barium				<0.20	U	mg/l						
Beryllium												
Cadmium				<0.0050	UN	mg/l						
Calcium				5.0	N	mg/l						
Chromium				<0.010	UN	mg/l						
Chromium VI				<0.010	U	mg/l						
Copper				<0.025	UN	mg/l						
Iron				<0.10	U	mg/l						
Lead - Graphite Furnace				<0.0030	U	mg/l						
Magnesium				<5.0	U	mg/l						
Manganese				<0.015	UN	mg/l						
Mercury				<0.00020	U	mg/l						
Nickel				<0.040	UN	mg/l						
Potassium				<5.0	U	mg/l						
Selenium				<0.10	UN	mg/l						
Silver				<0.010	UN	mg/l						
Sodium				<5.0	U	mg/l						
Zinc				<0.020	UN	mg/l						
1,2,4-Trichlorobenzene				<10	U	ug/l						
1,2-Dichlorobenzene				<10	U	ug/l						
1,3-Dichlorobenzene				<10	U	ug/l						

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for WQ
Tinker Air Force Base

Parameters	Well/Boring:	FIELDQC			FIELDQC			FIELDQC			FIELDQC		
	Sample ID:	A1599			A1605			A1606			A1666		
	Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
		Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
1,4-Dichlorobenzene					<10	U	ug/l						
2,4,5-Trichlorophenol					<10	U	ug/l						
2,4,6-TRIBROMOPHENOL					72		%rec						
2,4,6-Tribromophenol													
2,4,6-Trichlorophenol					<10	U	ug/l						
2,4-Dichlorophenol					<10	U	ug/l						
2,4-Dimethylphenol					<10	U	ug/l						
2,4-Dinitrophenol					<25	U	ug/l						
2,4-Dinitrotoluene					<10	U	ug/l						
2,6-Dinitrotoluene					<10	U	ug/l						
2-Chloronaphthalene					<10	U	ug/l						
2-Chlorophenol					<10	U	ug/l						
2-FLUOROBIPHENYL					74		%rec						
2-FLUOROPHENOL					77		%rec						
2-Fluorobiphenyl													
2-Fluorophenol													
2-Methylnaphthalene					<10	U	ug/l						
2-Methylphenol					<10	U	ug/l						
2-Nitroaniline					<25	U	ug/l						
2-Nitrophenol					<10	U	ug/l						
3,3'-Dichlorobenzidine					<10	U	ug/l						
3-Nitroaniline					<25	U	ug/l						
4,6-Dinitro-2-methylphenol					<25	U	ug/l						
4-Bromophenyl-phenylether					<10	U	ug/l						
4-Chloro-3-methylphenol					<10	U	ug/l						
4-Chloroaniline					<10	U	ug/l						
4-Chlorophenyl-phenylether					<10	U	ug/l						
4-Methylphenol					<10	U	ug/l						
4-Nitroaniline					<10	U	ug/l						
4-Nitrophenol					<25	U	ug/l						
Acenaphthene					<10	U	ug/l						

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Parameters	Well/Boring: FIELDQC Sample ID: A1599 Depth: 0 - 0			FIELDQC A1605 0 - 0			FIELDQC A1606 0 - 0			FIELDQC A1666 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Acenaphthylene				<10	U	ug/l						
Anthracene				<10	U	ug/l						
Benzo(a)anthracene				<10	U	ug/l						
Benzo(a)pyrene				<10	U	ug/l						
Benzo(b)fluoranthene				<10	U	ug/l						
Benzo(g,h,i)perylene				<10	U	ug/l						
Benzo(k)fluoranthene				<10	U	ug/l						
Benzoic Acid				<10	U	ug/l						
Benzyl alcohol				<10	U	ug/l						
Butylbenzylphthalate				<10	U	ug/l						
Chrysene				<10	U	ug/l						
Di-n-butylphthalate				1.3	J	ug/l						
Di-n-octylphthalate				<10	U	ug/l						
Dibenzo(a,h)anthracene				<10	U	ug/l						
Dibenzofuran				<10	U	ug/l						
Diethylphthalate				<10	U	ug/l						
Dimethylphthalate				<10	U	ug/l						
Fluoranthene				<10	U	ug/l						
Fluorene				<10	U	ug/l						
Hexachlorobenzene				<10	U	ug/l						
Hexachlorobutadiene				<10	U	ug/l						
Hexachlorocyclopentadiene				<10	U	ug/l						
Hexachloroethane				<10	U	ug/l						
Indeno(1,2,3-cd)pyrene				<10	U	ug/l						
Isophorone				<10	U	ug/l						
N-Nitroso-di-n-propylamine				<10	U	ug/l						
N-Nitrosodiphenylamine				<10	U	ug/l						
NITROBENZENE-D5				93		%rec						
Naphthalene				<10	U	ug/l						
Nitrobenzene				<10	U	ug/l						
Nitrobenzene-D5												

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QFR = Qualifier
Analytical data has not been validated.

Analytical QC results at the FTA
for WQ
Tinker Air Force Base

Well/Boring:	FIELDQC			FIELDQC			FIELDQC			FIELDQC		
Sample ID:	A1599			A1605			A1606			A1666		
Depth:	0 - 0			0 - 0			0 - 0			0 - 0		
Parameters	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
PHENOL-D5				89		%rec						
Pentachlorophenol				<25	U	ug/l						
Phenanthrene				<10	U	ug/l						
Phenol				<10	U	ug/l						
Phenol-D5												
Pyrene				<10	U	ug/l						
TERPHENYL-D14				85		%rec						
Terphenyl-D14												
bis(2-Chloroethoxy)methane				<10	U	ug/l						
bis(2-Chloroethyl)ether				<10	U	ug/l						
bis(2-Chloroisopropyl)ethe				<10	U	ug/l						
bis(2-Ethylhexyl)phthalate				<10	U	ug/l						
Total Dissolved Solids				17		mg/l						
Total Kjeldahl Nitrogen				<0.25	U	mg/l						
Total Organic Carbon				<1.0	U	mg/l						
Total Suspended Solids				<10	U	mg/l						
TPH - IR				<1.0	U	mg/l						
1,1,1-Trichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1,2,2-Tetrachloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1,2-Trichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,1-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,2-Dichloroethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
1,2-Dichloroethane-D4	102		%rec	101		%rec	94		%rec	99		%rec
1,2-Dichloropropane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
2-Butanone	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l
2-Chloroethylvinyl ether	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
2-Hexanone	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l
4-Methyl-2-Pentanone	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l	<50	U	ug/l
Acetone	7.4	J	ug/l	<100	U	ug/l	<100	U	ug/l	<100	U	ug/l
Benzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

Analytical QC results at the FTA
for WQ
Tinker Air Force Base

Parameters	Well/Boring: FIELDQC Sample ID: A1599 Depth: 0 - 0			FIELDQC A1605 0 - 0			FIELDQC A1606 0 - 0			FIELDQC A1666 0 - 0		
	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units	Result	QFR	Units
Bromofluorobenzene	98		%rec	96		%rec	100		%rec	105		%rec
Bromoform	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Bromomethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Carbon Disulfide	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Carbon Tetrachloride	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chlorobenzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chlorodibromomethane	<5	U	ug/l	<5	U	ug/l	2.9	J	ug/l	<5	U	ug/l
Chloroethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Chloroform	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Chloromethane	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Dichlorobromomethane	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Ethylbenzene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Methylene Chloride	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Styrene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Tetrachloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Toluene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Toluene-D8	95		%rec	94		%rec	99		%rec	104		%rec
Trichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
Vinyl Acetate	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Vinyl Chloride	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l	<10	U	ug/l
Xylenes (total)	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
cis 1,3 Dichloropropene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
cis-1,2-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
trans 1,3-Dichloropropene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l
trans-1,2-Dichloroethene	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l	<5	U	ug/l

B = Analyte was also found in sample blank
E = Concentration exceeds instrument calibration range for that specific analysis
J = Concentration is an estimated value
N = Sample is outside of Matrix Spike QC limit
< = Not detected
QFR = Qualifier
Analytical data has not been validated.

CERTIFICATES OF ANALYSIS

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

Routed to KH, TL, 12/20/93

CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 12/17/93

Work Order: B3-11-191

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O.5001 409832-003-01
Date Received: 11/16/93
Number of Samples: 13
Sample Type: SOIL

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1540	B3-11-191-01
A1540-MS	B3-11-191-02
A1540-MSD	B3-11-191-03
A1541	B3-11-191-04
A1542	B3-11-191-05
A1543	B3-11-191-06
A1544	B3-11-191-07
A1545	B3-11-191-08
A1546	B3-11-191-09
A1547	B3-11-191-10
LAB BLANK	B3-11-191-11
LAB BLANK	B3-11-191-12
LAB BLANK	B3-11-191-13

Reviewed and Approved:

Jon Bartell
Laboratory Director

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

SAMPLE ID: A1540
SAMPLE DATE: 11/15/93 10:52:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.49U	0.49	MG/KG	11/23/93	EPA7196

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1540**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	5.6	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	5.4	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
[illegible]-Dichloroethane	5	U	5	Bromoform	5	U	5
[illegible]s-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	4.4	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	1.1	BJ	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	102	74 - 121
1,2-DICHLOROETHANE-D4	107	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1540**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/27/93**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
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(512) 892-6684

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1540**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	77	23 - 120
2-Fluorobiphenyl	94	30 - 115
Terphenyl-D14	79	18 - 137
Phenol-D5	75	24 - 113
2-Fluorophenol	65	25 - 121
2,4,6-Tribromophenol	79	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1540**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **85.4700**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.8		0.86	7060	12/06/93
Aluminum	8400	N	17	6010	12/05/93
Barium	150	N	17	6010	12/05/93
Beryllium	1.1		0.43	6010	12/05/93
Cadmium	0.74		0.43	6010	12/05/93
Chromium	9.4		0.85	6010	12/05/93
Copper	5.2		2.1	6010	12/05/93
Iron	10000	N	8.5	6010	12/05/93
Nickel	12	*	3.4	6010	12/05/93
Lead	8.8	N	1.0	7421	12/06/93
Mercury	0.025	U	0.025	7471	12/03/93
Silver	0.85	U	0.85	6010	12/05/93
Zinc	12		1.7	6010	12/05/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Duplicate analysis outside control limits due to matrix interference on nickel analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-191

SAMPLE ID: **A1540-MS**
SAMPLE DATE: **11/15/93 10:52:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		92		% REC	11/23/93	EPA7196

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1540-MS**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/24/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	95	Trichloroethene	85
		Benzene	104
		Toluene	105
		Chlorobenzene	107

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	93	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1540-MS**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/27/93**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **0.033**
UNITS: **% REC**

	Result		Result
Phenol	76	Acenaphthene	56
2-Chlorophenol	98	4-Nitrophenol	77
1,4-Dichlorobenzene	40	2,4-Dinitrotoluene	40
N-Nitroso-di-n-propylamine	52	Pentachlorophenol	80
1,2,4-Trichlorobenzene	46	Pyrene	45
4-Chloro-3-methylphenol	97		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	90	23 - 120
2-Fluorobiphenyl	101	30 - 115
Terphenyl-D14	80	18 - 137
Phenol-D5	81	24 - 113
2-Fluorophenol	75	25 - 121
2,4,6-Tribromophenol	83	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-191

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1540-MS**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **116.279**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	116	7060	12/06/93
Aluminum	1296	6010	12/05/93
Barium	338	6010	12/05/93
Beryllium	87	6010	12/05/93
Cadmium	82	6010	12/05/93
Chromium	95	6010	12/05/93
Copper	87	6010	12/05/93
Iron	789	6010	12/05/93
Nickel	86	6010	12/05/93
Lead	190	7421	12/06/93
Mercury	110	7471	12/03/93
Silver	82	6010	12/05/93
Zinc	92	6010	12/05/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike outside control limits due to matrix interference on aluminum, barium and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

% RPD for matrix spikes outside control limits due to matrix interference on barium analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-191

SAMPLE ID: **A1540-MSD**
SAMPLE DATE: **11/15/93 10:52:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		92		% REC	11/23/93	EPA7196

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Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1540-MSD**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/24/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	94	Trichloroethene	87
		Benzene	105
		Toluene	108
		Chlorobenzene	108

Surrogates	% Recovery	Limits
TOLUENE-D8	108	81 - 117
BROMOFLUOROBENZENE	92	74 - 121
1,2-DICHLOROETHANE-D4	107	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1540-MSD**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/27/93**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **0.033**
UNITS: **% REC**

	Result		Result
Phenol	69	Acenaphthene	49
2-Chlorophenol	76	4-Nitrophenol	56
1,4-Dichlorobenzene	29	2,4-Dinitrotoluene	36
N-Nitroso-di-n-propylamine	39	Pentachlorophenol	63
1,2,4-Trichlorobenzene	34	Pyrene	43
4-Chloro-3-methylphenol	79		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	68	23 - 120
2-Fluorobiphenyl	85	30 - 115
Terphenyl-D14	76	18 - 137
Phenol-D5	70	24 - 113
2-Fluorophenol	63	25 - 121
2,4,6-Tribromophenol	73	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-11-191

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1540-MSD**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **86.2068**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	117	7060	12/06/93
Aluminum	1122	6010	12/05/93
Barium	124	6010	12/05/93
Beryllium	87	6010	12/05/93
Cadmium	82	6010	12/05/93
Chromium	94	6010	12/05/93
Copper	87	6010	12/05/93
Iron	688	6010	12/05/93
Nickel	83	6010	12/05/93
Lead	256	7421	12/06/93
Mercury	120	7471	12/03/93
Silver	82	6010	12/05/93
Zinc	90	6010	12/05/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
\+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike duplicate outside control limits due to matrix interference on aluminum, barium and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

% RPD for matrix spikes outside control limits due to matrix interference on barium analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-191

SAMPLE ID: **A1541**
SAMPLE DATE: **11/15/93 11:00:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.51U	0.51	MG/KG	11/23/93	EPA7196

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1541**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	6.8	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	8.7	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	3.5	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	102	74 - 121
1,2-DICHLOROETHANE-D4	110	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1541**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/27/93**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
ethylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1541**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	78	23 - 120
2-Fluorobiphenyl	96	30 - 115
Terphenyl-D14	77	18 - 137
Phenol-D5	74	24 - 113
2-Fluorophenol	66	25 - 121
2,4,6-Tribromophenol	76	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-191

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1541**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **91.7431**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	3.3		0.92	7060	12/06/93
Aluminum	5900	N	18	6010	12/05/93
Barium	69	N	18	6010	12/05/93
Beryllium	0.88		0.46	6010	12/05/93
Cadmium	0.46	U	0.46	6010	12/05/93
Chromium	8.2		0.92	6010	12/05/93
Copper	5.5		2.3	6010	12/05/93
Iron	7200	N	9.2	6010	12/05/93
Nickel	12	*	3.7	6010	12/05/93
Lead	5.5	N	0.28	7421	12/06/93
Mercury	0.020	U	0.020	7471	12/03/93
Silver	0.92	U	0.92	6010	12/05/93
Zinc	15		1.8	6010	12/05/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

SAMPLE ID: **A1542**
SAMPLE DATE: **11/15/93 11:24:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	11/23/93	EPA7196

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1542**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	6.8	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	9.1	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	110	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1542**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/27/93**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
ethylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1542**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	69	23 - 120
2-Fluorobiphenyl	90	30 - 115
Terphenyl-D14	74	18 - 137
Phenol-D5	73	24 - 113
2-Fluorophenol	64	25 - 121
2,4,6-Tribromophenol	71	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1542**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **109.890**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.2		1.1	7060	12/06/93
Aluminum	19000	N	22	6010	12/05/93
Barium	27	N	22	6010	12/05/93
Beryllium	2.0		0.55	6010	12/05/93
Cadmium	0.55	U	0.55	6010	12/05/93
Chromium	24		1.1	6010	12/05/93
Copper	22		2.7	6010	12/05/93
Iron	16000	N	11	6010	12/05/93
Nickel	26	*	4.4	6010	12/05/93
Lead	3.5	N	0.33	7421	12/06/93
Mercury	0.023	U	0.023	7471	12/03/93
Silver	1.1	U	1.1	6010	12/05/93
Zinc	35		2.2	6010	12/05/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

SAMPLE ID: **A1543**
SAMPLE DATE: **11/15/93 11:38:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	11/23/93	EPA7196

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1543**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	3.3	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	5.7	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	104	81 - 117
BROMOFLUOROBENZENE	101	74 - 121
1,2-DICHLOROETHANE-D4	108	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1543**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/27/93**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
ethylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1543**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	61	23 - 120
2-Fluorobiphenyl	81	30 - 115
Terphenyl-D14	65	18 - 137
Phenol-D5	64	24 - 113
2-Fluorophenol	56	25 - 121
2,4,6-Tribromophenol	59	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1543**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **92.5925**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	4.1		0.93	7060	12/06/93
Aluminum	6300	N	19	6010	12/05/93
Barium	32	N	19	6010	12/05/93
Beryllium	1.0		0.46	6010	12/05/93
Cadmium	0.46	U	0.46	6010	12/05/93
Chromium	11		0.93	6010	12/05/93
Copper	9.2		2.3	6010	12/05/93
Iron	11000	N	9.3	6010	12/05/93
Nickel	13	*	3.7	6010	12/05/93
Lead	9.1	N	1.1	7421	12/06/93
Mercury	0.024	U	0.024	7471	12/03/93
Silver	0.93	U	0.93	6010	12/05/93
Zinc	17		1.9	6010	12/05/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

SAMPLE ID: **A1544**
SAMPLE DATE: **11/15/93 12:25:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	11/23/93	EPA7196

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1544**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.8	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	7.6	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	2.8	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	101	74 - 121
1,2-DICHLOROETHANE-D4	111	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1544**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/27/93**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1544**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	62	23 - 120
2-Fluorobiphenyl	79	30 - 115
Terphenyl-D14	64	18 - 137
Phenol-D5	62	24 - 113
2-Fluorophenol	55	25 - 121
2,4,6-Tribromophenol	56	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-191

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1544**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **98.0392**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.5		0.98	7060	12/06/93
Aluminum	9000	N	20	6010	12/05/93
Barium	54	N	20	6010	12/05/93
Beryllium	1.9		0.49	6010	12/05/93
Cadmium	1.1		0.49	6010	12/05/93
Chromium	37		0.98	6010	12/05/93
Copper	11		2.5	6010	12/05/93
Iron	22000	N	9.8	6010	12/05/93
Nickel	22	*	3.9	6010	12/05/93
Lead	5.7	N	0.29	7421	12/06/93
Mercury	0.024	U	0.024	7471	12/03/93
Silver	0.98	U	0.98	6010	12/05/93
Zinc	26		2.0	6010	12/05/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-191

SAMPLE ID: **A1545**
SAMPLE DATE: **11/15/93 16:10:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.51U	0.51	MG/KG	11/23/93	EPA7196

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1545**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	1.3	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.7	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
[illegible]-Dichloroethane	5	U	5	Bromoform	5	U	5
[illegible]s-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	5.1	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	104	74 - 121
1,2-DICHLOROETHANE-D4	107	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1545**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/27/93**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
ethylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.07	J	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1545**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	81	23 - 120
2-Fluorobiphenyl	99	30 - 115
Terphenyl-D14	77	18 - 137
Phenol-D5	78	24 - 113
2-Fluorophenol	66	25 - 121
2,4,6-Tribromophenol	72	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1545**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **108.695**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.1	U	1.1	7060	12/06/93
Aluminum	2300	N	22	6010	12/05/93
Barium	22	UN	22	6010	12/05/93
Beryllium	0.54	U	0.54	6010	12/05/93
Cadmium	0.54	U	0.54	6010	12/05/93
Chromium	8.8		1.1	6010	12/05/93
Copper	2.7	U	2.7	6010	12/05/93
Iron	6100	N	11	6010	12/05/93
Nickel	7.9	*	4.3	6010	12/05/93
Lead	3.1	N	0.33	7421	12/06/93
Mercury	0.024	U	0.024	7471	12/03/93
Silver	1.1	U	1.1	6010	12/05/93
Zinc	7.8		2.2	6010	12/05/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

SAMPLE ID: **A1546**
SAMPLE DATE: **11/15/93 16:25:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.51U	0.51	MG/KG	11/23/93	EPA7196

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1546**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	8.0	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
] ¹-Dichloroethane	5	U	5	Bromoform	5	U	5
ıs-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cıs-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	2.4	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	103	74 - 121
1,2-DICHLOROETHANE-D4	112	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1546**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/27/93**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1546**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	81	23 - 120
2-Fluorobiphenyl	94	30 - 115
Terphenyl-D14	77	18 - 137
Phenol-D5	76	24 - 113
2-Fluorophenol	65	25 - 121
2,4,6-Tribromophenol	77	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1546**
SAMPLE DATE: **11/15/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **111.111**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.3		1.1	7060	12/06/93
Aluminum	1500	N	22	6010	12/05/93
Barium	22	UN	22	6010	12/05/93
Beryllium	0.56	U	0.56	6010	12/05/93
Cadmium	0.56	U	0.56	6010	12/05/93
Chromium	6.7		1.1	6010	12/05/93
Copper	2.8	U	2.8	6010	12/05/93
Iron	4600	N	11	6010	12/05/93
Nickel	6.0	*	4.4	6010	12/05/93
Lead	2.9	N	0.33	7421	12/06/93
Mercury	0.022	U	0.022	7471	12/03/93
Silver	1.1	U	1.1	6010	12/05/93
Zinc	5.9		2.2	6010	12/05/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1547**
SAMPLE DATE: **10/20/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/22/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	3.4	J	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	96	88 - 110
BROMOFLUOROBENZENE	92	86 - 115
1,2-DICHLOROETHANE-D4	102	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-191

SAMPLE ID: **LAB BLANK**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/KG	11/23/93	EPA7196

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	3.5	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	5.3	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	3.0	J	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/27/93**
ANALYSIS DATE: **12/01/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	71	23 - 120
2-Fluorobiphenyl	88	30 - 115
Terphenyl-D14	82	18 - 137
Phenol-D5	71	24 - 113
2-Fluorophenol	62	25 - 121
2,4,6-Tribromophenol	78	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): 1.0
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	12/06/93
Aluminum	0.20	U	0.20	6010	12/05/93
Barium	0.20	U	0.20	6010	12/05/93
Beryllium	0.0050	U	0.0050	6010	12/05/93
Cadmium	0.0050	U	0.0050	6010	12/05/93
Chromium	0.010	U	0.010	6010	12/05/93
Copper	0.025	U	0.025	6010	12/05/93
Iron	0.10	U	0.10	6010	12/05/93
Nickel	0.040	U	0.040	6010	12/05/93
Lead	0.0030	U	0.0030	7421	12/06/93
Mercury	0.00020	U	0.00020	7471	12/03/93
Silver	0.010	U	0.010	6010	12/05/93
Zinc	0.020	U	0.020	6010	12/05/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/22/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	96	88 - 110
BROMOFLUOROBENZENE	103	86 - 115
1,2-DICHLOROETHANE-D4	100	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **11/23/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	5.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	1.6	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	3.2	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	102	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-191

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **ICP Metals** TEST CODE **6010**

Metals by ICP	Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables	Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace	Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **Chromium VI** TEST CODE **CR_VI**

Chromium VI	Method 7196, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Colorimetric analysis. Equivalent to Standard Methods 3500-Cr D.

TEST NAME **Mercury** TEST CODE **HG_AA**

Mercury	Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water.

Company: IT CORPORATION
Date: 12/17/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-191

TEST NAME **Mercury** TEST CODE **HG_AA**

Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK2**

Method not available.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **GFAA Digestion - Soil** TEST CODE **Z3050F**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace/Flame AA analysis.

TEST NAME **ICPES Digestion - Soil** TEST CODE **Z3050P**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for ICPES analysis. Equivalent to Method 3050A, SW-846 Update I, July 1992.

IN NATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

(TL)

Reference Document No. 514088

Page 1 of 2

White: To accompany samples Yellow: Field copy *See back of form for special instructions.

409832

Project Name/No.[1] Tinker 5001

Sample Team Members[2] M. Wilson / K Herrington

Profit Center No.[3] 3527

Project Manager[4] J. Taylor

Purchase Order No.[6] 409832.03.01

Required Report Date[11] Normal 15 working Days

Samples Shipment Date[7] 11/15/93

Lab Destination[8] ITAS - Austin

Lab Contact[9] Karmen Deanna

Project Contact/Phone[12] D. McGregor 405-736-2260

Carrier/Waybill No.[13] FedEx 8460 755520

Bill to:[5] 409832.03.01 DO seal

Report to:[10] Tim Jennings IT Austin

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Preservative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
A1540	2-65A · Soil	11/15/93 1050	glass	(2) 500ml	cool	SVOC · 8270 metals: 6010/7000	FOR LAB USE ONLY	
A1540	" "	" 1052	"	125ml	cool	VOC · 8240		
A1541	" "	"	"	500ml	"	SVOC · 8270 metals: 6010/7000		
A1541	" "	" 1100	"	125ml	"	VOC · 8240		
A1542	" "	" 1124	"	500ml	"	Metals: 6010/7000 SVOC · 8270	FOR LAB USE ONLY	
A1542	" "	" 1124	"	125ml	"	VOC 8240		
A1543	" "	" 1138	"	500ml	"	metals: 6010/7000 SVOC · 8270		
A1543	" "	" 1138	"	125ml	"	VOC · 8240		

COPY

Special Instructions:[23] A1540 · MS/MSD

Possible Hazard Identification:[24] Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal:[25] Return to Client ☐ Disposal by Lab ☑ Archive _____ (mos.)

Turnaround Time Required:[26] Normal ☑ Rush ☐

QC Level:[27] I. ☑ II. ☐ III. ☐ Project Specific (specify): _____

1. Relinquished by[28] (Signature/Affiliation) Karen Herrington Date: 11/15/93 Time: 1800	1. Received by[28] (Signature/Affiliation) Date: Time:
2. Relinquished by (Signature/Affiliation) Date: Time:	2. Received by (Signature/Affiliation) Date: Time:
3. Relinquished by (Signature/Affiliation) Date: Time:	3. Received by (Signature/Affiliation) Date: Time:

Comments:[29]

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 314088
Page 2 of 2

Project Name Tinker Soil

Project No. 105832.23.01

Samples Shipment Date 11/15/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
~~A1513~~ KH A1514	2-65A-Soil	11/15/93 1210	4 oz jar	500ml	cool	SVOC - 8270 metals - 6010/7000		
~~A1514~~ KH A1544	" "	" "	"	125ml	cool	VOC 8240		
A1545	" "	" 1610	"	500ml	cool	SVOC - 8270 metals - 6010/7000		
A1545	" "	" 1610	"	125ml	cool	VOC - 8240		
A1546	" "	" 1625	"	500ml	cool	SVOC - 8270 metals - 6010/7000		
A1546	" "	" 1625	"	125ml	cool	VOC 8240		
A1547	Trip Blank Water	" "	"	"	cool	VOC 8240		

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

SENDER'S COPY
DROP OFF YOUR PACKAGE AND SAVE

FEDERAL EXPRESS

USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE
TRACKING NUMBER
8460755520

3291A 8460755520

SENDER'S COPY

1 SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER: 1104-0551-9
Date: 11/1/93

From (Your Name) Please Print:
Your Phone Number (Very Important):
Company: I T FIELD OFFICE
Department/Floor No.:
Street Address: PATROL & RESERVE RD BLDG 1007
City: TINKER A F B
State: OK
ZIP Required: 73145

2 To (Recipient's Name) Please Print:
Recipient's Phone Number (Very Important): 512-892-6684
Company: ITAS
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 9307 INDUS OAKS BLVD STE 160
City: AUSTIN
State: TX
ZIP Required: 78715

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 40183.2.2.01

H IF HOLD AT FEDEX LOCATION, Print FEDEX Address Here
Street Address:
City:
State:
ZIP Required:

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash/Check
Acct./Credit Card No.:
Exp. Date:

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning.)
11 [X] OTHER PACKAGING
16 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon. No Saturday delivery.)
51 [ ] OTHER PACKAGING
56 [ ] FEDEX LETTER*
52 [ ] FEDEX PAK*
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day.)
30 [ ] ECONOMY**
* Economy Letter Rate not available. Minimum charge: One pound Economy rate.

Government Overnight (Restricted for authorized users only.)
46 [ ] GOVT LETTER
41 [ ] GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required.)
80 [ ] TWO-DAY FREIGHT**
† Delivery commitment may be later in some areas.
*Declared Value Limit $500.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

Weekday Service
1 [ ] HOLD AT FEDEX LOCATION WEEKDAY (Fill in Section H)
2 [X] DELIVER WEEKDAY

Saturday Service
31 [ ] HOLD AT FEDEX LOCATION SATURDAY (Fill in Section H)
3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)
9 [ ] SATURDAY PICK-UP (Extra charge)

Special Handling
4 [ ] DANGEROUS GOODS (Extra charge)
6 [ ] DRY ICE Dangerous Goods Shipper's Declaration not required
Dry Ice, 9, UN 1845 ____ X ____ kg, 904 III
[ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
Total	Total	Total

DIM SHIPMENT (Chargeable Weight)
[ ] ____ lbs.
L x W x H

Received At
1 [ ] Regular Stop
2 [ ] On-Call Stop
3 [ ] Drop Box
4 [ ] B.S.C.
5 [ ] Station

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information. Service conditions may vary for Government Overnight Service. See U.S. Government Service Guide for details.

We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is $500.

In the event of untimely delivery, Federal Express will at your request and with some limitations refund all transportation charges paid. See Service Guide for further information.

7 Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

Release Signature:

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 12/92
PART #137204 FXEM 9/93
FORMAT #158
158

Auxiliary Data Summary 12/16/93

Work order : B311191 Sample ID : A1540

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
01B						
	Arsenic	B311191-11B	12023050F2	12/02/93	12/06/93	85.5
	Chromium VI	B311191-11B	1123CR_VI1	11/22/93	11/23/93	49.0
	Mercury	B311191-11B	1203HGAA3	12/03/93	12/03/93	123
	Lead	B311191-11B	12023050F2	12/02/93	12/06/93	342

Auxiliary Data Summary 12/16/93

Work order : B311191 Sample ID : A1540-MS

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02B						
	Arsenic	B311191-11B	12023050F2	12/02/93	12/06/93	116
	Chromium VI	B311191-11B	1123CR_VI1	11/22/93	11/23/93	51.0
	Mercury	B311191-11B	1203HGAA3	12/03/93	12/03/93	120
	Lead	B311191-11B	12023050F2	12/02/93	12/06/93	465

Auxiliary Data Summary 12/16/93

Work order : B311191 Sample ID : A1540-MSD

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03B						
	Arsenic	B311191-11B	12023050F2	12/02/93	12/06/93	86.2
	Chromium VI	B311191-11B	1123CR_VI1	11/22/93	11/23/93	51.0
	Mercury	B311191-11B	1203HGAA3	12/03/93	12/03/93	127
	Lead	B311191-11B	12023050F2	12/02/93	12/06/93	345

Auxiliary Data Summary 12/16/93

Work order : B311191 Sample ID : A1541

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04B						
	Arsenic	B311191-11B	12023050F2	12/02/93	12/06/93	91.7
	Chromium VI	B311191-11B	1123CR_VI1	11/22/93	11/23/93	51.0
	Mercury	B311191-11B	1203HGAA3	12/03/93	12/03/93	101
	Lead	B311191-11B	12023050F2	12/02/93	12/06/93	91.7

Auxiliary Data Summary 12/16/93

Work order : B311191 Sample ID : A1542

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
05B						
	Arsenic	B311191-11B	12023050F2	12/02/93	12/06/93	110
	Chromium VI	B311191-11B	1123CR_VI1	11/22/93	11/23/93	50.0
	Mercury	B311191-11B	1203HGAA3	12/03/93	12/03/93	115
	Lead	B311191-11B	12023050F2	12/02/93	12/06/93	110

Auxiliary Data Summary 12/16/93

Work order : B311191 Sample ID : A1543

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
06B						
	Arsenic	B311191-11B	12023050F2	12/02/93	12/06/93	92.6
	Chromium VI	B311191-11B	1123CR_VI1	11/22/93	11/23/93	49.5
	Mercury	B311191-11B	1203HGAA3	12/03/93	12/03/93	119
	Lead	B311191-11B	12023050F2	12/02/93	12/06/93	370

Auxiliary Data Summary 12/16/93

Work order : B311191 Sample ID : A1544

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
07B						
	Arsenic	B311191-11B	12023050F2	12/02/93	12/06/93	98
	Chromium VI	B311191-11B	1123CR_VI1	11/22/93	11/23/93	50.0
	Mercury	B311191-11B	1203HGAA3	12/03/93	12/03/93	122
	Lead	B311191-11B	12023050F2	12/02/93	12/06/93	98

Auxiliary Data Summary 12/16/93

Work order : B311191 Sample ID : A1545

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
08B						
	Arsenic	B311191-11B	12023050F2	12/02/93	12/06/93	109
	Chromium VI	B311191-11B	1123CR_VI1	11/22/93	11/23/93	51.0
	Mercury	B311191-11B	1203HGAA3	12/03/93	12/03/93	118
	Lead	B311191-11B	12023050F2	12/02/93	12/06/93	109

Auxiliary Data Summary 12/16/93

Work order : B311191 Sample ID : A1546

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
09B						
	Arsenic	B311191-11B	12023050F2	12/02/93	12/06/93	111
	Chromium VI	B311191-11B	1123CR_VI1	11/22/93	11/23/93	50.5
	Mercury	B311191-11B	1203HGAA3	12/03/93	12/03/93	110
	Lead	B311191-11B	12023050F2	12/02/93	12/06/93	111

Auxiliary Data Summary 12/16/93

Work order : B311191 Sample ID : LAB BLANK

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
11B						
	Arsenic	B311191-11B	12023050F2	12/02/93	12/06/93	1.0
	Chromium VI	B311191-11B	1123CR_VI1	11/23/93	11/23/93	1.0
	Mercury	B311191-11B	1203HGAA3	12/03/93	12/03/93	1.0
	Lead	B311191-11B	12023050F2	12/02/93	12/06/93	1.0

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

Related to LK, CF, TL
12/28/93

CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 12/23/93

Work Order: B3-11-254

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O.5001 409832-003-01
Date Received: 11/19/93
Number of Samples: 12
Sample Type: SOIL

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1548	B3-11-254-01
A1548-MS	B3-11-254-02
A1548-MSD	B3-11-254-03
A1549	B3-11-254-04
A1550	B3-11-254-05
A1551	B3-11-254-06
A1552	B3-11-254-07
A1553	B3-11-254-08
A1554	B3-11-254-09
LAB BLANK #1	B3-11-254-10
LAB BLANK #1	B3-11-254-11
LAB BLANK #2	B3-11-254-12

Reviewed and Approved:

Karmen Olsen for
Jon Bartell
Laboratory Director

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-254

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

SAMPLE ID: **A1548**
SAMPLE DATE: **11/18/93 10:53:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1548**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/01/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	8.6	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	2.5	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	106	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1548**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.04	J	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	1.4		0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.56		0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	1.3		0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1548**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	68	23 - 120
2-Fluorobiphenyl	66	30 - 115
Terphenyl-D14	71	18 - 137
Phenol-D5	75	24 - 113
2-Fluorophenol	57	25 - 121
2,4,6-Tribromcphenol	68	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1548**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **92.5926**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.9		1.0	7060	12/09/93
Aluminum	12000	N	19	6010	12/09/93
Barium	690	N	19	6010	12/09/93
Beryllium	1.4		0.46	6010	12/09/93
Cadmium	1.1		0.46	6010	12/09/93
Chromium	15		0.93	6010	12/09/93
Copper	8.5		2.3	6010	12/09/93
Iron	13000	N	9.3	6010	12/09/93
Nickel	17		3.7	6010	12/09/93
Lead	7.2	N	0.30	7421	12/09/93
Mercury	0.030	U	0.030	7471	12/07/93
Silver	0.93	U	0.93	6010	12/09/93
Zinc	23		1.9	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

SAMPLE ID: A1548-MS
SAMPLE DATE: 11/18/93 10:53:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		101		% REC	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1548-MS**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/01/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	103	Trichloroethene	91
		Benzene	102
		Toluene	98
		Chlorobenzene	96

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	98	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1548-MS**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **% REC**

	Result		Result
Phenol	75	Acenaphthene	82
2-Chlorophenol	80	4-Nitrophenol	63
1,4-Dichlorobenzene	79	2,4-Dinitrotoluene	68
N-Nitroso-di-n-propylamine	76	Pentachlorophenol	79
1,2,4-Trichlorobenzene	80	Pyrene	79
4-Chloro-3-methylphenol	72		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	68	23 - 120
2-Fluorobiphenyl	69	30 - 115
Terphenyl-D14	72	18 - 137
Phenol-D5	74	24 - 113
2-Fluorophenol	65	25 - 121
2,4,6-Tribromophenol	71	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1548-MS**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **92.5926**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	100	7060	12/09/93
Aluminum	1371	6010	12/09/93
Barium	905	6010	12/09/93
Beryllium	89	6010	12/09/93
Cadmium	85	6010	12/09/93
Chromium	95	6010	12/09/93
Copper	91	6010	12/09/93
Iron	548	6010	12/09/93
Nickel	90	6010	12/09/93
Lead	143	7421	12/09/93
Mercury	110	7471	12/07/93
Silver	85	6010	12/09/93
Zinc	94	6010	12/09/93

Data qualifier key:

E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
\+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike outside control limits due to matrix interference on aluminum, barium and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

% RPD for matrix spikes outside control limits due to matrix interference on barium analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

SAMPLE ID: **A1548-MSD**
SAMPLE DATE: **11/18/93 10:53:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		95		% REC	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1548-MSD**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/01/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	106	Trichloroethene	87
		Benzene	102
		Toluene	101
		Chlorobenzene	99

Surrogates	% Recovery	Limits
TOLUENE-D8	105	81 - 117
BROMOFLUOROBENZENE	98	74 - 121
1,2-DICHLOROETHANE-D4	104	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1548-MSD**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **% REC**

	Result		Result
Phenol	71	Acenaphthene	78
2-Chlorophenol	77	4-Nitrophenol	65
1,4-Dichlorobenzene	74	2,4-Dinitrotoluene	70
N-Nitroso-di-n-propylamine	76	Pentachlorophenol	79
1,2,4-Trichlorobenzene	79	Pyrene	78
4-Chloro-3-methylphenol	72		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	68	23 - 120
2-Fluorobiphenyl	65	30 - 115
Terphenyl-D14	71	18 - 137
Phenol-D5	72	24 - 113
2-Fluorophenol	62	25 - 121
2,4,6-Tribromophenol	65	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-254

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1548-MSD**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **96.1538**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	99	7060	12/09/93
Aluminum	1155	6010	12/09/93
Barium	1358	6010	12/09/93
Beryllium	89	6010	12/09/93
Cadmium	86	6010	12/09/93
Chromium	93	6010	12/09/93
Copper	90	6010	12/09/93
Iron	448	6010	12/09/93
Nickel	89	6010	12/09/93
Lead	129	7421	12/09/93
Mercury	110	7471	12/07/93
Silver	86	6010	12/09/93
Zinc	92	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike duplicate outside control limits due to matrix interference on aluminum, barium and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

% RPD for matrix spikes outside control limits due to matrix interference on barium analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

SAMPLE ID: **A1549**
SAMPLE DATE: **11/18/93 11:00:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1549**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/01/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	5.5	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	13	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	108	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1549**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.072	J	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	1.2		0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.67		0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	1.5		0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1549**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	67	23 - 120
2-Fluorobiphenyl	67	30 - 115
Terphenyl-D14	69	18 - 137
Phenol-D5	74	24 - 113
2-Fluorophenol	62	25 - 121
2,4,6-Tribromophenol	64	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1549**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **108.696**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.8		1.1	7060	12/09/93
Aluminum	16000	N	22	6010	12/09/93
Barium	22	UN	22	6010	12/09/93
Beryllium	1.9		0.54	6010	12/09/93
Cadmium	0.55		0.54	6010	12/09/93
Chromium	19		1.1	6010	12/09/93
Copper	22		2.7	6010	12/09/93
Iron	13000	N	11	6010	12/09/93
Nickel	28		4.3	6010	12/09/93
Lead	2.5	N	0.33	7421	12/09/93
Mercury	0.031	U	0.031	7471	12/07/93
Silver	1.1	U	1.1	6010	12/09/93
Zinc	33		2.2	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

SAMPLE ID: **A1550**
SAMPLE DATE: **11/18/93 11:00:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1550**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/01/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit
Chloromethane	10	U	10
Bromomethane	10	U	10
Vinyl chloride	10	U	10
Chloroethane	10	U	10
Methylene chloride	5.8	JB	10
Acetone	13	JB	100
Carbon disulfide	5	U	5
1,1-Dichloroethene	5	U	5
1,1-Dichloroethane	5	U	5
trans-1,2-Dichloroethene	5	U	5
cis-1,2-Dichloroethene	5	U	5
Chloroform	5	U	5
1,2-Dichloroethane	5	U	5
2-Butanone	3.0	J	100
1,1,1-Trichloroethane	5	U	5
Carbon tetrachloride	5	U	5
Vinyl acetate	10	U	10
Dichlorobromomethane	5	U	5
1,2-Dichloropropane	5	U	5
trans-1,3-Dichloropropene	5	U	5
Trichloroethene	5	U	5
Chlorodibromomethane	5	U	5
1,1,2-Trichloroethane	5	U	5
Benzene	5	U	5
cis-1,3-Dichloropropene	5	U	5
2-Chloroethylvinyl ether	10	U	10
Bromoform	5	U	5
2-Hexanone	50	U	50
4-Methyl-2-pentanone	50	U	50
Tetrachloroethene	5	U	5
1,1,2,2-Tetrachloroethane	5	U	5
Toluene	5	U	5
Chlorobenzene	5	U	5
Ethylbenzene	5	U	5
Styrene	5	U	5
Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	104	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3- =4

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1550**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.07	J	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	1.2		0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.78		0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	1.9		0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1550**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	68	23 - 120
2-Fluorobiphenyl	64	30 - 115
Terphenyl-D14	69	18 - 137
Phenol-D5	73	24 - 113
2-Fluorophenol	59	25 - 121
2,4,6-Tribromophenol	67	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1550**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **108.696**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.7		1.1	7060	12/09/93
Aluminum	12000	N	22	6010	12/09/93
Barium	22	UN	22	6010	12/09/93
Beryllium	1.6		0.54	6010	12/09/93
Cadmium	0.54	U	0.54	6010	12/09/93
Chromium	14		1.1	6010	12/09/93
Copper	20		2.7	6010	12/09/93
Iron	9800	N	11	6010	12/09/93
Nickel	22		4.3	6010	12/09/93
Lead	3.0	N	0.32	7421	12/09/93
Mercury	0.032	U	0.032	7471	12/07/93
Silver	1.1	U	1.1	6010	12/09/93
Zinc	26		2.2	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-254

SAMPLE ID: A1551
SAMPLE DATE: 11/18/93 11:13:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1551**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/01/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	6.5	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	7.2	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	4.0	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	104	81 - 117
BROMOFLUOROBENZENE	98	74 - 121
1,2-DICHLOROETHANE-D4	108	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1551**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit
Phenol	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330
2-Chlorophenol	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330
1,4-Dichlorobenzene	0.330	U	0.330
Benzyl alcohol	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330
Hexachloroethane	0.330	U	0.330
Nitrobenzene	0.330	U	0.330
Isophorone	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330
Benzoic Acid	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330
Naphthalene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825
2-Chloronaphthalene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825
Dimethylphthalate	0.330	U	0.330
Acenaphthylene	0.330	U	0.330
2,6-Dinitrotoluene	0.330	U	0.330
3-Nitroaniline	0.825	U	0.825
Acenaphthene	0.330	U	0.330
2,4-Dinitrophenol	0.825	U	0.825
4-Nitrophenol	0.825	U	0.825
Dibenzofuran	0.330	U	0.330
2,4-Dinitrotoluene	0.330	U	0.330
Diethylphthalate	0.082	J	0.330
4-Chlorophenyl-phenylether	0.330	U	0.330
Fluorene	0.330	U	0.330
4-Nitroaniline	0.825	U	0.825
4,6-Dinitro-2-methylphenol	0.825	U	0.825
N-Nitrosodiphenylamine (1)	0.330	U	0.330
4-Bromophenyl-phenylether	0.330	U	0.330
Hexachlorobenzene	0.330	U	0.330
Pentachlorophenol	0.825	U	0.825
Phenanthrene	0.330	U	0.330
Anthracene	0.330	U	0.330
Di-n-butylphthalate	1.4		0.330
Fluoranthene	0.330	U	0.330
Pyrene	0.330	U	0.330
Butylbenzylphthalate	0.96		0.330
3,3'-Dichlorobenzidine	0.330	U	0.330
Benzo(a)anthracene	0.330	U	0.330
Chrysene	0.330	U	0.330
bis(2-Ethylhexyl)phthalate	2.1		0.330
Di-n-octylphthalate	0.330	U	0.330
Benzo(b)fluoranthene	0.330	U	0.330
Benzo(k)fluoranthene	0.330	U	0.330
Benzo(a)pyrene	0.330	U	0.330
Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Dibenzo(a,h)anthracene	0.330	U	0.330
Benzo(g,h,i)perylene	0.330	U	0.330

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1551**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	41	23 - 120
2-Fluorobiphenyl	40	30 - 115
Terphenyl-D14	47	18 - 137
Phenol-D5	51	24 - 113
2-Fluorophenol	44	25 - 121
2,4,6-Tribromcphenol	42	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1551**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **104.167**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.1		0.86	7060	12/09/93
Aluminum	9900	N	21	6010	12/09/93
Barium	21	UN	21	6010	12/09/93
Beryllium	1.5		0.52	6010	12/09/93
Cadmium	0.52	U	0.52	6010	12/09/93
Chromium	11		1.0	6010	12/09/93
Copper	19		2.6	6010	12/09/93
Iron	11000	N	10	6010	12/09/93
Nickel	21		4.2	6010	12/09/93
Lead	7.8	N	1.0	7421	12/09/93
Mercury	0.030	U	0.030	7471	12/07/93
Silver	1.0	U	1.0	6010	12/09/93
Zinc	22		2.1	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

SAMPLE ID: **A1552**
SAMPLE DATE: **11/18/93 11:25:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/08/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1552**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	7.4	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	11	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	2.0	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	105	81 - 117
BROMOFLUOROBENZENE	102	74 - 121
1,2-DICHLOROETHANE-D4	105	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1552**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.061	J	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1552**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	70	23 - 120
2-Fluorobiphenyl	65	30 - 115
Terphenyl-D14	72	18 - 137
Phenol-D5	68	24 - 113
2-Fluorophenol	61	25 - 121
2,4,6-Tribromophenol	68	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1552**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **90.9091**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.2	U	1.2	7060	12/09/93
Aluminum	1800	N	18	6010	12/09/93
Barium	56	N	18	6010	12/09/93
Beryllium	0.45	U	0.45	6010	12/09/93
Cadmium	0.45	U	0.45	6010	12/09/93
Chromium	8.5		0.91	6010	12/09/93
Copper	2.3	U	2.3	6010	12/09/93
Iron	3700	N	9.1	6010	12/09/93
Nickel	6.3		3.6	6010	12/09/93
Lead	1.5	N	0.35	7421	12/09/93
Mercury	0.032	U	0.032	7471	12/07/93
Silver	0.91	U	0.91	6010	12/09/93
Zinc	7.8		1.8	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1553**
SAMPLE DATE: **11/16/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/30/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	96	88 - 110
BROMOFLUOROBENZENE	98	86 - 115
1,2-DICHLOROETHANE-D4	104	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

SAMPLE ID: **A1554**
SAMPLE DATE: **11/18/93 12:15:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/L	11/19/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1554**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/30/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	98	88 - 110
BROMOFLUOROBENZENE	100	86 - 115
1,2-DICHLOROETHANE-D4	104	76 - 114

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1554**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **11/24/93**
ANALYSIS DATE: **11/21/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1554**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	32*	35 - 114
2-Fluorobiphenyl	31*	43 - 116
Terphenyl-D14	40	33 - 141
Phenol-D5	29	10 - 94
2-Fluorophenol	29	21 - 100
2,4,6-Tribromophenol	37	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Referenced notes for these results:

Sample originally extracted 11/24/93 and analyzed 12/11/93 with two surrogates outside QC limits. Sample was re-extracted 12/13/93 and reanalyzed 12/15/93. Surrogates were within QC limits. Both analyses yielded similar results. Original analysis is reported.

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1554**
SAMPLE DATE: **11/18/93**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.0**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	12/02/93
Aluminum	0.20	U	0.20	6010	12/17/93
Barium	0.20	U	0.20	6010	12/17/93
Beryllium	0.0050	U	0.0050	6010	12/17/93
Cadmium	0.0050	U	0.0050	6010	12/17/93
Chromium	0.010	U	0.010	6010	12/17/93
Copper	0.0250	U	0.0250	6010	12/17/93
Iron	0.10	U	0.10	6010	12/17/93
Nickel	0.040	U	0.040	6010	12/17/93
Lead	0.0030	U	0.0030	7421	12/02/93
Mercury	0.00020	U	0.00020	7471	12/01/93
Silver	0.010	U	0.010	6010	12/17/93
Zinc	0.020	U	0.020	6010	12/17/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/KG	12/08/93	EPA7196

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/01/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reportin Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	1.4	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	3.7	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	99	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	71	23 - 120
2-Fluorobiphenyl	70	30 - 115
Terphenyl-D14	77	18 - 137
Phenol-D5	72	24 - 113
2-Fluorophenol	60	25 - 121
2,4,6-Tribromophenol	64	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-11-254

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **1.0**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	12/09/93
Aluminum	0.20	U	0.20	6010	12/09/93
Barium	0.20	U	0.20	6010	12/09/93
Beryllium	0.0050	U	0.0050	6010	12/09/93
Cadmium	0.0050	U	0.0050	6010	12/09/93
Chromium	0.010	U	0.010	6010	12/09/93
Copper	0.025	U	0.025	6010	12/09/93
Iron	0.10	U	0.10	6010	12/09/93
Nickel	0.040	U	0.040	6010	12/09/93
Lead	0.0030	U	0.0030	7421	12/09/93
Mercury	0.00020	U	0.00020	7471	12/07/93
Silver	0.010	U	0.010	6010	12/09/93
Zinc	0.020	U	0.020	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.0.5001

409832-003-01 Work Order: B3-11-254

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/L	11/19/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/30/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	99	88 - 110
BROMOFLUOROBENZENE	101	86 - 115
1,2-DICHLOROETHANE-D4	101	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-11-254

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	67	35 - 114
2-Fluorobiphenyl	82	43 - 116
Terphenyl-D14	51	33 - 141
Phenol-D5	63	10 - 94
2-Fluorophenol	51	21 - 100
2,4,6-Tribromophenol	55	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
DILUTION FACTOR (6010): **1.00**
UNITS: **MG/L**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	12/02/93
Aluminum	0.20	U	0.2	6010	12/17/93
Barium	0.20	U	0.2	6010	12/17/93
Beryllium	0.0050	U	0.005	6010	12/17/93
Cadmium	0.0050	U	0.005	6010	12/17/93
Chromium	0.010	U	0.01	6010	12/17/93
Copper	0.0250	U	0.025	6010	12/17/93
Iron	0.10	U	0.1	6010	12/17/93
Nickel	0.040	U	0.04	6010	12/17/93
Lead	0.0030	U	0.0030	7421	12/02/93
Mercury	0.00020	U	0.00020	7471	12/01/93
Silver	0.010	U	0.01	6010	12/17/93
Zinc	0.046		0.02	6010	12/17/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-254

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #2**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	3.5	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	100	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

Referenced notes for this work order:

B311254

Prep blank for ICP analysis had zinc level greater than 20ppb PQL. All samples with concentration levels greater than 20ppb were repreped and reanalyzed, except for sample #09C which was non-detect. No blank correction was performed.

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AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-254

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **ICP Metals** TEST CODE **6010**

Metals by ICP	Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables	Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace	Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **Chromium VI** TEST CODE **CR_VI**

Chromium VI	Method 7196, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Colorimetric analysis. Equivalent to Standard Methods 3500-Cr D.

TEST NAME **Mercury** TEST CODE **HG_AA**

Mercury	Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

TEST NAME **Mercury** TEST CODE **HG_AA**

Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK2**

Method not available.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **ICPES Digestion - Water** TEST CODE **Z3005**

Water Digestion	Method 3005A, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Digestion procedure for the preparation of surface and ground water samples for analysis by flame atomic absorption spectroscopy and inductively coupled plasma spectroscopy. The procedure determines total recoverable or dissolved metals.

TEST NAME **GFAA Digestion - Water** TEST CODE **Z3020**

Water Digestion	Method 3020, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace.

TEST NAME **GFAA Digestion - Soil** TEST CODE **Z3050F**

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-254

TEST NAME **GFAA Digestion - Soil** TEST CODE **Z3050F**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace/Flame AA analysis.

TEST NAME **ICPES Digestion - Soil** TEST CODE **Z3050P**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for ICPES analysis. Equivalent to Method 3050A, SW-846 Update I, July 1992.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 514096
Page 1 of 2

Project Name/No.[1] Tinker 5001
Sample Team Members[2] M. Wilson, K. Herrington
Profit Center No.[3] 3527
Project Manager[4] J. Taylor
Purchase Order No.[6] 409832 003
Required Report Date[11] Normal (5 working Days)

Samples Shipment Date[7] 11/18/93
Lab Destination[8] ITAS Austin
Lab Contact[9] Karmen Deane
Project Contact/Phone[12] Dan McGregor 405-736-2260

Bill to:[5] 409832.03 DO 5001
Report to:[10] Tim Jennings I. T. Austin
Carrier/Waybill No.[13] F. Exp 846075542

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Preservative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
A1548	2-64A - Soil	11/18/93 1053	Glass	(2) 500ml	Cool	8270 6010/7000 SVOC metals	Good 1°C See KVR dtd 11-19-93	
A1548		1053		125ml		VOC - 8240		
A1549		1100		500ml		8270 6010/7000 SVOC metals		
A1549		1100		125ml		VOC - 8240		
A1550		1100		500ml		8270 6010/7000 SVOC metals		
A1550		1100		125ml		VOC-8240		
A1551		1113		500ml		8270 6010/7000 SVOC metals		
A1551		1113		125ml		VOC 8240		

Special Instructions:[23] A1548 ms/msd ; A1550 Duplicate of A1549

Possible Hazard Identification:[24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal:[25]
Return to Client ☐ Disposal by Lab ☑ Archive (mos.)

Turnaround Time Required:[26]
Normal ☑ Rush ☐

QC Level:[27]
I. ☑ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by[28] (Signature/Affiliation) Karmen Herrington	Date: 11/18/93 Time: 1800	1. Received by[28] (Signature/Affiliation) Lori Church IT	Date: 11-19-93 Time: 0920
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments:[29]

MCA 3/15/91

White: To accompany samples Yellow: Field copy See back of form for special instructions.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 314096
Page 2 of 2

Project Name Tinker 5001 | Project No. 409832 | Samples Shipment Date 11/18/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
A1552	2-64A Soil	11/18/93 1125	glass	500ml	cool	8270 6010/7000 SVOC metals	Good 1°C SPC VOC 11-19-93 RVR	
A1552	↓ ↓	↓	↓	125ml	↓	VOC: 8240	↓	
A1553	Trip Blank	↓	↓	40ml	↓	VOC 8240		BJ244100C TC 11/16/93 1702
A1554	Rinse Blank	11/18/93 1215	glass	1L	cool	SVOC - 8270		
A1554	↓	↓	~~glass~~ KK Plastic	40ml	(HCl)	VOC - 8240		BJ244100A
A1554	↓	↓	Plastic	500ml	(HNO3)	metals 6010/7000	↓	
A1554	↓	↓	Plastic	125ml	↓	Cr^{+6}	↓	

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

Auxiliary Data Summary 12/21/93

Work order : B311254 Sample ID : A1548

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
01B						
	Arsenic	B311254-10B	12043050F1	12/04/93	12/09/93	101
	Chromium VI	B311254-10B	1208CR_VI1	12/07/93	12/08/93	50.0
	Mercury	B311254-10B	1207HGAA2	12/07/93	12/07/93	149
	Lead	B311254-10B	12043050F1	12/04/93	12/09/93	202

Auxiliary Data Summary 12/21/93

Work order : B311254 Sample ID : A1548-MS

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02B						
	Arsenic	B311254-10B	12043050F1	12/04/93	12/09/93	105
	Chromium VI	B311254-10B	1208CR_VI1	12/07/93	12/08/93	50.0
	Mercury	B311254-10B	1207HGAA2	12/07/93	12/07/93	167
	Lead	B311254-10B	12043050F1	12/04/93	12/09/93	421

Auxiliary Data Summary 12/21/93

Work order : B311254 Sample ID : A1548-MSD

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03B						
	Arsenic	B311254-10B	12043050F1	12/04/93	12/09/93	109
	Chromium VI	B311254-10B	1208CR_VI1	12/07/93	12/08/93	50.0
	Mercury	B311254-10B	1207HGAA2	12/07/93	12/07/93	152
	Lead	B311254-10B	12043050F1	12/04/93	12/09/93	435

Auxiliary Data Summary 12/21/93

Work order : B311254 Sample ID : A1549

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04B						
	Arsenic	B311254-10B	12043050F1	12/07/93	12/09/93	110
	Chromium VI	B311254-10B	1208CR_VI1	12/07/93	12/08/93	50.0
	Mercury	B311254-10B	1207HGAA2	12/04/93	12/07/93	156
	Lead	B311254-10B	12043050F1	12/07/93	12/09/93	110

Auxiliary Data Summary 12/21/93

Work order : B311254 Sample ID : A1550

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
05B						
	Arsenic	B311254-10B	12043050F1	12/04/93	12/09/93	106
	Chromium VI	B311254-10B	1208CR_VI1	12/07/93	12/08/93	50.0
	Mercury	B311254-10B	1207HGAA2	12/07/93	12/07/93	161
	Lead	B311254-10B	12043050F1	12/04/93	12/09/93	106

Auxiliary Data Summary 12/21/93

Work order : B311254 Sample ID : A1551

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
06B						
	Arsenic	B311254-10B	12043050F1	12/04/93	12/09/93	86.2
	Chromium VI	B311254-10B	1208CR_VI1	12/07/93	12/08/93	50.0
	Mercury	B311254-10B	1207HGAA2		12/07/93	149
	Lead	B311254-10B	12043050F1	12/04/93	12/09/93	345

Auxiliary Data Summary 12/21/93

Work order : B311254 Sample ID : A1552

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
07B						
	Arsenic	B311254-10B	12043050F1	12/04/93	12/09/93	118
	Chromium VI	B311254-10B	1208CR_VI1	12/07/93	12/08/93	50.0
	Mercury	B311254-10B	1207HGAA2	12/07/93	12/07/93	159
	Lead	B311254-10B	12043050F1	12/04/93	12/09/93	118

Auxiliary Data Summary 12/21/93

Work order : B311254 Sample ID : A1554

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
09C	Lead	B311254-11C	113030201	11/30/93	12/02/93	1.0
09D	Chromium VI	B311254-11D	1119CR_VI1	11/19/93	11/19/93	1.0

Auxiliary Data Summary 12/21/93

Work order : B311254 Sample ID : LAB BLANK #1

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
10B						
	Arsenic	B311254-10B	12043050F1	12/04/93	12/09/93	1.0
	Chromium VI	B311254-10B	1208CR_VI1	12/08/93	12/08/93	1.0
	Mercury	B311254-10B	1207HGAA2	12/07/93	12/07/93	1.0
	Lead	B311254-10B	12043050F1	12/04/93	12/09/93	1.0

Auxiliary Data Summary 12/21/93

Work order : B311254 Sample ID : LAB BLANK #1

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
11C						
	Arsenic	B311254-11C	113030201	11/30/93	12/02/93	1.0
	Mercury	B311254-11C	1201HGAA2	12/01/93	12/01/93	1.0
	Lead	B311254-11C	113030201	11/30/93	12/02/93	1.0
11D	Chromium VI	B311254-11D	1119CR_VI1	11/19/93	11/19/93	1.0

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

Routed to [illegible]

CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 12/23/93

Work Order: B3-11-255

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O.5001 409832-003-01
Date Received: 11/20/93
Number of Samples: 12
Sample Type: SOIL

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1555	B3-11-255-01
A1555-MS	B3-11-255-02
A1555-MSD	B3-11-255-03
A1556	B3-11-255-04
2-63A	B3-11-255-05
A1557	B3-11-255-06
A1558	B3-11-255-07
A1559	B3-11-255-08
A1560	B3-11-255-09
LAB BLANK #1	B3-11-255-10
LAB BLANK #2	B3-11-255-11
LAB BLANK #1	B3-11-255-12

Reviewed and Approved:

Karmen Deane for
Jon Bartell
Laboratory Director

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-255

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-255

SAMPLE ID: A1555
SAMPLE DATE: 11/19/93 08:50:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-11-255

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1555**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	7.9	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.5	JB	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	3.2	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	3.8	J	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	94	74 - 121
1,2-DICHLOROETHANE-D4	108	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1555**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	1.7		0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1555**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	57	23 - 120
2-Fluorobiphenyl	57	30 - 115
Terphenyl-D14	77	18 - 137
Phenol-D5	62	24 - 113
2-Fluorophenol	53	25 - 121
2,4,6-Tribromophenol	67	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-255

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1555**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **92.5926**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	3.0	N	1.1	7060	12/09/93
Aluminum	11000	*N	19	6010	12/09/93
Barium	900	*N	19	6010	12/09/93
Beryllium	1.7		0.46	6010	12/09/93
Cadmium	0.71		0.46	6010	12/09/93
Chromium	13	*	0.93	6010	12/09/93
Copper	9.9	*	2.3	6010	12/09/93
Iron	15000	*N	9.3	6010	12/09/93
Nickel	19	*	3.7	6010	12/09/93
Lead	13	N	1.3	7421	12/09/93
Mercury	0.023	U	0.023	7471	12/07/93
Silver	0.93	U	0.93	6010	12/09/93
Zinc	18	*	1.9	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Duplicate analysis outside control limits due to matrix interference on aluminum, barium, chromium, copper, iron, nickel and zinc analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

SAMPLE ID: **A1555-MS**
SAMPLE DATE: **11/19/93 08:50:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		97		% REC	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1555-MS**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	103	Trichloroethene	82
		Benzene	97
		Toluene	96
		Chlorobenzene	96

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	96	74 - 121
1,2-DICHLOROETHANE-D4	106	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1555-MS**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **467.29**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	96	7060	12/09/93
Aluminum	951	6010	12/09/93
Barium	0	6010	12/09/93
Beryllium	92	6010	12/09/93
Cadmium	89	6010	12/09/93
Chromium	90	6010	12/09/93
Copper	83	6010	12/09/93
Iron	231	6010	12/09/93
Nickel	80	6010	12/09/93
Lead	162	7421	12/09/93
Mercury	110	7471	12/07/93
Silver	87	6010	12/09/93
Zinc	90	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike outside control limits due to matrix interference on aluminum, barium and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

% RPD for matrix spikes outside control limits due to matrix interference on aluminum and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

SAMPLE ID: **A1555-MSD**
SAMPLE DATE: **11/19/93 08:50:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		90		% REC	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1555-MSD**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	101	Trichloroethene	82
		Benzene	97
		Toluene	98
		Chlorobenzene	98

Surrogates	% Recovery	Limits
TOLUENE-D8	106	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	108	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
'blank' - positive result
B - analyte is found in the associated blank as well as in the sample
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1555-MSD**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **96.1538**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	67	7060	12/09/93
Aluminum	1406	6010	12/09/93
Barium	0	6010	12/09/93
Beryllium	89	6010	12/09/93
Cadmium	87	6010	12/09/93
Chromium	97	6010	12/09/93
Copper	86	6010	12/09/93
Iron	500	6010	12/09/93
Nickel	81	6010	12/09/93
Lead	73	6010	12/09/93
Mercury	110	6010	12/09/93
Silver	84	7421	12/09/93
Zinc	91	7471	12/07/93
		6010	12/09/93
		6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

eferenced notes for these results:

Matrix spike duplicate outside control limits due to matrix interference on aluminum, barium and iron analysis by ICPES. / LCSD results and method Quality Control were ptable.

% RPD for matrix spikes outside control limits due to matrix interference on aluminum and iron analysis by ICPES. LCS / LCSD results and method Quality Control were accept

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

SAMPLE ID: **A1556**
SAMPLE DATE: **11/19/93 08:55:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1556**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit
Chloromethane	10	U	10
Bromomethane	10	U	10
Vinyl chloride	10	U	10
Chloroethane	10	U	10
Methylene chloride	5.4	J	10
Acetone	9.1	JB	100
Carbon disulfide	5	U	5
1,1-Dichloroethene	5	U	5
1-Dichloroethane	5	U	5
trans-1,2-Dichloroethene	5	U	5
cis-1,2-Dichloroethene	5	U	5
Chloroform	5	U	5
1,2-Dichloroethane	5	U	5
2-Butanone	3.1	J	100
1,1,1-Trichloroethane	4.3	J	5
Carbon tetrachloride	5	U	5
Vinyl acetate	10	U	10
Dichlorobromomethane	5	U	5

	Result	Qual	Reporting Limit
1,2-Dichloropropane	5	U	5
trans-1,3-Dichloropropene	5	U	5
Trichloroethene	5	U	5
Chlorodibromomethane	5	U	5
1,1,2-Trichloroethane	5	U	5
Benzene	5	U	5
cis-1,3-Dichloropropene	5	U	5
2-Chloroethylvinyl ether	10	U	10
Bromoform	5	U	5
2-Hexanone	50	U	50
4-Methyl-2-pentanone	50	U	50
Tetrachloroethene	5	U	5
1,1,2,2-Tetrachloroethane	5	U	5
Toluene	5	U	5
Chlorobenzene	5	U	5
Ethylbenzene	5	U	5
Styrene	5	U	5
Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	106	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	109	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1556**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.34		0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1556**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	14*	23 - 120
2-Fluorobiphenyl	15*	30 - 115
Terphenyl-D14	14*	18 - 137
Phenol-D5	21	24 - 113
2-Fluorophenol	18*	25 - 121
2,4,6-Tribromophenol	16	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Referenced notes for these results:

Sample was re-extracted 12/09/93 and re-analyzed 12/11/93. The surrogate recoveries were within QC limits on the reprep. The original analysis is reported.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1556**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **96.1538**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.2	UN	1.2	7060	12/09/93
Aluminum	11000	*N	19	6010	12/09/93
Barium	22	*N	19	6010	12/09/93
Beryllium	1.4		0.48	6010	12/09/93
Cadmium	0.48	U	0.48	6010	12/09/93
Chromium	11	*	0.96	6010	12/09/93
Copper	15	*	2.4	6010	12/09/93
Iron	10000	*N	9.6	6010	12/09/93
Nickel	18	*	3.8	6010	12/09/93
Lead	7.3	N	0.35	7421	12/09/93
Mercury	0.025	U	0.025	7471	12/07/93
Silver	0.96	U	0.96	6010	12/09/93
Zinc	24	*	1.9	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

SAMPLE ID: A1557
SAMPLE DATE: 11/19/93 09:20:00
SAMPLE MATRIX: SOIL

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1557**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit
Chloromethane	10	U	10
Bromomethane	10	U	10
Vinyl chloride	10	U	10
Chloroethane	10	U	10
Methylene chloride	10	U	10
Acetone	15	J	100
Carbon disulfide	5	U	5
1,1-Dichloroethene	5	U	5
1-Dichloroethane	5	U	5
-ans-1,2-Dichloroethene	5	U	5
cis-1,2-Dichloroethene	5	U	5
Chloroform	5	U	5
1,2-Dichloroethane	5	U	5
2-Butanone	100	U	100
1,1,1-Trichloroethane	5	U	5
Carbon tetrachloride	5	U	5
Vinyl acetate	10	U	10
Dichlorobromomethane	5	U	5
1,2-Dichloropropane	5	U	5
trans-1,3-Dichloropropene	5	U	5
Trichloroethene	5	U	5
Chlorodibromomethane	5	U	5
1,1,2-Trichloroethane	5	U	5
Benzene	5	U	5
cis-1,3-Dichloropropene	5	U	5
2-Chloroethylvinyl ether	10	U	10
Bromoform	5	U	5
2-Hexanone	50	U	50
4-Methyl-2-pentanone	50	U	50
Tetrachloroethene	5	U	5
1,1,2,2-Tetrachloroethane	5	U	5
Toluene	5	U	5
Chlorobenzene	5	U	5
Ethylbenzene	5	U	5
Styrene	5	U	5
Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	104	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	107	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1557**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit
Phenol	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330
2-Chlorophenol	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330
1,4-Dichlorobenzene	0.330	U	0.330
Benzyl alcohol	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330
b ?-Chloroisopropyl)ether	0.330	U	0.330
4· ethylphenol	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330
Hexachloroethane	0.330	U	0.330
Nitrobenzene	0.330	U	0.330
Isophorone	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330
Benzoic Acid	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330
,4-Dichlorophenol	0.330	U	0.330
,2,4-Trichlorobenzene	0.330	U	0.330
aphthalene	0.330	U	0.330
-Chloroaniline	0.330	U	0.330
exachlorobutadiene	0.330	U	0.330
-Chloro-3-methylphenol	0.330	U	0.330
Methylnaphthalene	0.330	U	0.330
xachlorocyclopentadiene	0.330	U	0.330
4,6-Trichlorophenol	0.330	U	0.330
4,5-Trichlorophenol	0.330	U	0.330
hloronaphthalene	0.825	U	0.825
itroaniline	0.330	U	0.330
ethylphthalate	0.825	U	0.825
naphthylene	0.330	U	0.330
	0.330	U	0.330

	Result	Qual	Reporting Limit
2,6-Dinitrotoluene	0.330	U	0.330
3-Nitroaniline	0.825	U	0.825
Acenaphthene	0.330	U	0.330
2,4-Dinitrophenol	0.825	U	0.825
4-Nitrophenol	0.825	U	0.825
Dibenzofuran	0.330	U	0.330
2,4-Dinitrotoluene	0.330	U	0.330
Diethylphthalate	0.04	J	0.330
4-Chlorophenyl-phenylether	0.330	U	0.330
Fluorene	0.330	U	0.330
4-Nitroaniline	0.825	U	0.825
4,6-Dinitro-2-methylphenol	0.825	U	0.825
N-Nitrosodiphenylamine (1)	0.330	U	0.330
4-Bromophenyl-phenylether	0.330	U	0.330
Hexachlorobenzene	0.330	U	0.330
Pentachlorophenol	0.825	U	0.825
Phenanthrene	0.330	U	0.330
Anthracene	0.330	U	0.330
Di-n-butylphthalate	0.83		0.330
Fluoranthene	0.330	U	0.330
Pyrene	0.330	U	0.330
Butylbenzylphthalate	0.330	U	0.330
3,3'-Dichlorobenzidine	0.330	U	0.330
Benzo(a)anthracene	0.330	U	0.330
Chrysene	0.330	U	0.330
bis(2-Ethylhexyl)phthalate	0.330	U	0.330
Di-n-octylphthalate	0.330	U	0.330
Benzo(b)fluoranthene	0.330	U	0.330
Benzo(k)fluoranthene	0.330	U	0.330
Benzo(a)pyrene	0.330	U	0.330
Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Dibenzo(a,h)anthracene	0.330	U	0.330
Benzo(g,h,i)perylene	0.330	U	0.330

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1557**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	39	23 - 120
2-Fluorobiphenyl	41	30 - 115
Terphenyl-D14	43	18 - 137
Phenol-D5	46	24 - 113
2-Fluorophenol	39	25 - 121
2,4,6-Tribromophenol	39	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-255

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1557**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **116.279**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.2	UN	1.2	7060	12/09/93
Aluminum	12000	*N	23	6010	12/09/93
Barium	110	*N	23	6010	12/09/93
Beryllium	1.9		0.58	6010	12/09/93
Cadmium	0.77		0.58	6010	12/09/93
Chromium	20	*	1.2	6010	12/09/93
Copper	18	*	2.9	6010	12/09/93
Iron	17000	*N	12	6010	12/09/93
Nickel	20	*	4.7	6010	12/09/93
Lead	7.0	N	0.35	7421	12/09/93
Mercury	0.024	U	0.024	7471	12/07/93
Silver	1.2	U	1.2	6010	12/09/93
Zinc	27	*	2.3	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

SAMPLE ID: **A1558**
SAMPLE DATE: **11/19/93 09:33:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1558**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit
Chloromethane	10	U	10
Bromomethane	10	U	10
Vinyl chloride	10	U	10
Chloroethane	10	U	10
Methylene chloride	10	U	10
Acetone	12	JB	100
Carbon disulfide	5	U	5
,1-Dichloroethene	5	U	5
,1 chloroethane	5	U	5
ra 1,2-Dichloroethene	5	U	5
s-1,2-Dichloroethene	5	U	5
loroform	5	U	5
2-Dichloroethane	5	U	5
Butanone	5	U	5
,1-Trichloroethane	100	U	100
bon tetrachloride	5	U	5
yl acetate	5	U	5
hlorobromomethane	10	U	10
	5	U	5

	Result	Qual	Reporting Limit
1,2-Dichloropropane	5	U	5
trans-1,3-Dichloropropene	5	U	5
Trichloroethene	5	U	5
Chlorodibromomethane	5	U	5
1,1,2-Trichloroethane	5	U	5
Benzene	5	U	5
cis-1,3-Dichloropropene	5	U	5
2-Chloroethylvinyl ether	5	U	5
Bromoform	10	U	10
2-Hexanone	5	U	5
4-Methyl-2-pentanone	50	U	50
Tetrachloroethene	50	U	50
1,1,2,2-Tetrachloroethane	5	U	5
Toluene	5	U	5
Chlorobenzene	5	U	5
Ethylbenzene	5	U	5
Styrene	5	U	5
Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	98	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	108	70 - 120

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1558**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit
Phenol	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330
2-Chlorophenol	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330
1,4-Dichlorobenzene	0.330	U	0.330
Benzyl alcohol	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330
'(2-Chloroisopropyl)ether	0.330	U	0.330
Methylphenol	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330
Hexachloroethane	0.330	U	0.330
Nitrobenzene	0.330	U	0.330
Isophorone	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330
Benzoic Acid	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330
Naphthalene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330
2,4,5-Trichlorophenol	0.330	U	0.330
2-Chloronaphthalene	0.825	U	0.825
2-Nitroaniline	0.330	U	0.330
Dimethylphthalate	0.825	U	0.825
Acenaphthylene	0.330	U	0.330
	0.330	U	0.330

	Result	Qual	Reporting Limit
2,6-Dinitrotoluene	0.330	U	0.330
3-Nitroaniline	0.825	U	0.825
Acenaphthene	0.330	U	0.330
2,4-Dinitrophenol	0.825	U	0.825
4-Nitrophenol	0.825	U	0.825
Dibenzofuran	0.330	U	0.330
2,4-Dinitrotoluene	0.330	U	0.330
Diethylphthalate	0.330	U	0.330
4-Chlorophenyl-phenylether	0.330	U	0.330
Fluorene	0.330	U	0.330
4-Nitroaniline	0.825	U	0.825
4,6-Dinitro-2-methylphenol	0.825	U	0.825
N-Nitrosodiphenylamine (1)	0.330	U	0.330
4-Bromophenyl-phenylether	0.330	U	0.330
Hexachlorobenzene	0.330	U	0.330
Pentachlorophenol	0.825	U	0.825
Phenanthrene	0.330	U	0.330
Anthracene	0.330	U	0.330
Di-n-butylphthalate	0.76		0.330
Fluoranthene	0.330	U	0.330
Pyrene	0.330	U	0.330
Butylbenzylphthalate	0.63		0.330
3,3'-Dichlorobenzidine	0.330	U	0.330
Benzo(a)anthracene	0.330	U	0.330
Chrysene	0.330	U	0.330
bis(2-Ethylhexyl)phthalate	1.7		0.330
Di-n-octylphthalate	0.330	U	0.330
Benzo(b)fluoranthene	0.330	U	0.330
Benzo(k)fluoranthene	0.330	U	0.330
Benzo(a)pyrene	0.330	U	0.330
Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Dibenzo(a,h)anthracene	0.330	U	0.330
Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1558**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	58	23 - 120
2-Fluorobiphenyl	62	30 - 115
Terphenyl-D14	74	18 - 137
Phenol-D5	67	24 - 113
2-Fluorophenol	53	25 - 121
2,4,6-Tribromophenol	61	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-255

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1558**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **97.0874**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.95	UN	0.95	7060	12/09/93
Aluminum	900	*N	19	6010	12/09/93
Barium	20	*N	19	6010	12/09/93
Beryllium	0.49	U	0.49	6010	12/09/93
Cadmium	0.49	U	0.49	6010	12/09/93
Chromium	3.9	*	0.97	6010	12/09/93
Copper	2.4	U*	2.4	6010	12/09/93
Iron	2800	*N	9.7	6010	12/09/93
Nickel	3.9	U*	3.9	6010	12/09/93
Lead	0.88	N	0.29	7421	12/09/93
Mercury	0.023	U	0.023	7471	12/07/93
Silver	0.97	U	0.97	6010	12/09/93
Zinc	4.7	*	1.9	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

SAMPLE ID: **A1559**
SAMPLE DATE: **11/19/93 09:49:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1559**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit
Chloromethane	10	U	10
Bromomethane	10	U	10
Vinyl chloride	10	U	10
Chloroethane	10	U	10
Methylene chloride	10	U	10
Acetone	67	J	100
Carbon disulfide	5	U	5
1,1-Dichloroethene	5	U	5
1,1-Dichloroethane	5	U	5
trans-1,2-Dichloroethene	5	U	5
cis-1,2-Dichloroethene	5	U	5
Chloroform	5	U	5
1,2-Dichloroethane	5	U	5
2-Butanone	15	JB	100
1,1,1-Trichloroethane	5	U	5
Carbon tetrachloride	5	U	5
Vinyl acetate	10	U	10
Dichlorobromomethane	5	U	5
1,2-Dichloropropane	5	U	5
trans-1,3-Dichloropropene	5	U	5
Trichloroethene	5	U	5
Chlorodibromomethane	5	U	5
1,1,2-Trichloroethane	5	U	5
Benzene	5	U	5
cis-1,3-Dichloropropene	5	U	5
2-Chloroethylvinyl ether	10	U	10
Bromoform	5	U	5
2-Hexanone	50	U	50
4-Methyl-2-pentanone	50	U	50
Tetrachloroethene	5	U	5
1,1,2,2-Tetrachloroethane	5	U	5
Toluene	5	U	5
Chlorobenzene	5	U	5
Ethylbenzene	5	U	5
Styrene	5	U	5
Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	104	81 - 117
BROMOFLUOROBENZENE	96	74 - 121
1,2-DICHLOROETHANE-D4	110	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1559**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit
Phenol	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330
2-Chlorophenol	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330
1,4-Dichlorobenzene	0.330	U	0.330
Benzyl alcohol	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330
Hexachloroethane	0.330	U	0.330
Nitrobenzene	0.330	U	0.330
Isophorone	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330
Benzoic Acid	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330
Naphthalene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825
2-Chloronaphthalene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825
Dimethylphthalate	0.330	U	0.330
Acenaphthylene	0.330	U	0.330

	Result	Qual	Reporting Limit
2,6-Dinitrotoluene	0.330	U	0.330
3-Nitroaniline	0.825	U	0.825
Acenaphthene	0.330	U	0.330
2,4-Dinitrophenol	0.825	U	0.825
4-Nitrophenol	0.825	U	0.825
Dibenzofuran	0.330	U	0.330
2,4-Dinitrotoluene	0.330	U	0.330
Diethylphthalate	0.04	J	0.330
4-Chlorophenyl-phenylether	0.330	U	0.330
Fluorene	0.330	U	0.330
4-Nitroaniline	0.825	U	0.825
4,6-Dinitro-2-methylphenol	0.825	U	0.825
N-Nitrosodiphenylamine (1)	0.330	U	0.330
4-Bromophenyl-phenylether	0.330	U	0.330
Hexachlorobenzene	0.330	U	0.330
Pentachlorophenol	0.825	U	0.825
Phenanthrene	0.330	U	0.330
Anthracene	0.330	U	0.330
Di-n-butylphthalate	0.65		0.330
Fluoranthene	0.330	U	0.330
Pyrene	0.330	U	0.330
Butylbenzylphthalate	0.57		0.330
3,3'-Dichlorobenzidine	0.330	U	0.330
Benzo(a)anthracene	0.330	U	0.330
Chrysene	0.330	U	0.330
bis(2-Ethylhexyl)phthalate	1.7		0.330
Di-n-octylphthalate	0.330	U	0.330
Benzo(b)fluoranthene	0.330	U	0.330
Benzo(k)fluoranthene	0.330	U	0.330
Benzo(a)pyrene	0.330	U	0.330
Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Dibenzo(a,h)anthracene	0.330	U	0.330
Benzo(g,h,i)perylene	0.330	U	0.330

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1559**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	46	23 - 120
2-Fluorobiphenyl	52	30 - 115
Terphenyl-D14	51	18 - 137
Phenol-D5	58	24 - 113
2-Fluorophenol	45	25 - 121
2,4,6-Tribromophenol	62	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1559**
SAMPLE DATE: **11/19/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **113.636**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.85	UN	0.85	7060	12/09/93
Aluminum	1500	*N	23	6010	12/09/93
Barium	23	U*N	23	6010	12/09/93
Beryllium	0.57	U	0.57	6010	12/09/93
Cadmium	0.90		0.57	6010	12/09/93
Chromium	4.0	*	1.1	6010	12/09/93
Copper	2.8	U*	2.8	6010	12/09/93
Iron	3700	*N	11	6010	12/09/93
Nickel	4.5	U*	4.5	6010	12/09/93
Lead	1.2	N	0.25	7421	12/09/93
Mercury	0.021	U	0.021	7471	12/07/93
Silver	1.1	U	1.1	6010	12/09/93
Zinc	4.8	*	2.3	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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AUSTIN, TX
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409832-003-01 Work Order: B3-11-255

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1560**
SAMPLE DATE: **11/16/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/30/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	97	88 - 110
BROMOFLUOROBENZENE	101	86 - 115
1,2-DICHLOROETHANE-D4	103	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.010U	0.010	MG/KG	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	3.5	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
.,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	100	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/28/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit
Phenol	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330
2-Chlorophenol	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330
1,4-Dichlorobenzene	0.330	U	0.330
Benzyl alcohol	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330
Hexachloroethane	0.330	U	0.330
Nitrobenzene	0.330	U	0.330
Isophorone	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330
Benzoic Acid	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330
Naphthalene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825
2-Chloronaphthalene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825
Dimethylphthalate	0.330	U	0.330
Acenaphthylene	0.330	U	0.330

	Result	Qual	Reporting Limit
2,6-Dinitrotoluene	0.330	U	0.330
3-Nitroaniline	0.825	U	0.825
Acenaphthene	0.330	U	0.330
2,4-Dinitrophenol	0.825	U	0.825
4-Nitrophenol	0.825	U	0.825
Dibenzofuran	0.330	U	0.330
2,4-Dinitrotoluene	0.330	U	0.330
Diethylphthalate	0.330	U	0.330
4-Chlorophenyl-phenylether	0.330	U	0.330
Fluorene	0.330	U	0.330
4-Nitroaniline	0.825	U	0.825
4,6-Dinitro-2-methylphenol	0.825	U	0.825
N-Nitrosodiphenylamine (1)	0.330	U	0.330
4-Bromophenyl-phenylether	0.330	U	0.330
Hexachlorobenzene	0.330	U	0.330
Pentachlorophenol	0.825	U	0.825
Phenanthrene	0.330	U	0.330
Anthracene	0.330	U	0.330
Di-n-butylphthalate	0.330	U	0.330
Fluoranthene	0.330	U	0.330
Pyrene	0.330	U	0.330
Butylbenzylphthalate	0.330	U	0.330
3,3'-Dichlorobenzidine	0.330	U	0.330
Benzo(a)anthracene	0.330	U	0.330
Chrysene	0.330	U	0.330
bis(2-Ethylhexyl)phthalate	0.330	U	0.330
Di-n-octylphthalate	0.330	U	0.330
Benzo(b)fluoranthene	0.330	U	0.330
Benzo(k)fluoranthene	0.330	U	0.330
Benzo(a)pyrene	0.330	U	0.330
Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Dibenzo(a,h)anthracene	0.330	U	0.330
Benzo(g,h,i)perylene	0.330	U	0.330

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-11-255

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	71	23 - 120
2-Fluorobiphenyl	70	30 - 115
Terphenyl-D14	77	18 - 137
Phenol-D5	72	24 - 113
2-Fluorophenol	60	25 - 121
2,4,6-Tribromophenol	64	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): 1.0
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	12/09/93
Aluminum	0.20	U	0.20	6010	12/09/93
Barium	0.20	U	0.20	6010	12/09/93
Beryllium	0.0050	U	0.0050	6010	12/09/93
Cadmium	0.0050	U	0.0050	6010	12/09/93
Chromium	0.010	U	0.010	6010	12/09/93
Copper	0.025	U	0.025	6010	12/09/93
Iron	0.10	U	0.10	6010	12/09/93
Nickel	0.040	U	0.040	6010	12/09/93
Lead	0.0030	U	0.0030	7421	12/09/93
Mercury	0.00020	U	0.00020	7471	12/07/93
Silver	0.010	U	0.010	6010	12/09/93
Zinc	0.020	U	0.020	6010	12/09/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #2**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/03/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	2.8	J	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	99	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/30/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	99	88 - 110
BROMOFLUOROBENZENE	101	86 - 115
1,2-DICHLOROETHANE-D4	101	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **ICP Metals** TEST CODE **6010**

Metals by ICP	Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables	Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace	Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **Cation Exchange Capacity** TEST CODE **CEC_A**

Cation exchange Capacity	Part 2: Chemical and microbiological properties method 57-3. American Society of Agronomy, Methods of soil Analysis 2nd Edition.

TEST NAME **Chromium VI** TEST CODE **CR_VI**

Chromium VI	Method 7196, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Colorimetric analysis. Equivalent to Standard Methods 3500-Cr D.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-11-255

TEST NAME **Grain Size Distriubtion** TEST CODE **GRAIN**

Method not available.

TEST NAME **Mercury** TEST CODE **HG_AA**

Mercury	Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water. Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK2**

Method not available.

TEST NAME **Moisture Content** TEST CODE **MOIS_G**

Method not available.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Vertical Permeability** TEST CODE **V_PERM**

Method not available.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-1

TEST NAME **GFAA Digestion - Soil** TEST CODE **Z3050F**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace/Flame AA analysis.

TEST NAME **ICPES Digestion - Soil** TEST CODE **Z3050P**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for ICPES analysis. Equivalent to Method 3050A, SW-846 Update I, July 1992.

TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD *

0311255

Reference Document No. 314097

Page 1 of 2

Project Name/No. [1] 409832 Tinker 5001

Sample Team Members [2] M. Wilson, K. Herrington

Profit Center No. [3] 3527

Project Manager [4] J. Taylor

Purchase Order No. [6] 409832 003

Required Report Date [11] Normal - 15 working days

Samples Shipment Date [7] 11/19/93

Lab Destination [8] ITAS - Austin

Lab Contact [9] Karmen Deanne

Project Contact/Phone [12] Dan McGregor 405-736-2260

Carrier/Waybill No. [13] Fed Exp 846075575

Bill to: [5] 409832.03 D.O. 5001

Report to: [10] Tim Jennings I.T. Austin

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
A1555	2-63A - Soil	11/19/93 0850	glass	(2) 500ml	cool	SVOC metals 8270 6010/7000	Good 1°C SEE RUR Kof C 11-20-93	
A1555	2-63A - Soil	↓	↓	125 ml	cool	VOC - 8240		
A1556	↓	↓ 0855		500 ml	cool	SVOC metals 8270 6010/7000		
A1556	↓	↓ ↓	↓	125 ml	cool	VOC - 8240		
2-63A	2-63A - Soil	↓ 0906	metal	1½" x 6" liner	cool	geotechnical: Perm K, grain size, moisture, C&C		
2-63A	↓	↓ ↓	metal	1½" x 6" liner	cool	↓		
A1557	↓	↓ 0920	glass	500ml	cool	SVOC metals 8270 6010/7000		
A1557	↓	↓ 0920	↓	125 ml	cool	VOC - 8240		

Special Instructions: [23] A1555 MS/MSD

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Turnaround Time Required: [26]
Normal ☑ Rush ☐

QC Level: [27]
I. ☑ II. ☐ III. ☐

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☑ Archive (mos.)

Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation) Karen Herrington Date: 11/19/93 Time: 1800

2. Relinquished by (Signature/Affiliation) Date: Time:

3. Relinquished by (Signature/Affiliation) Date: Time:

Comments: [29]

1. Received by [28] (Signature/Affiliation) Lori Church FT Date: 11-20-93 Time: 0847

2. Received by (Signature/Affiliation) Date: Time:

3. Received by (Signature/Affiliation) Date: Time:

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

B311255

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 314097

Page 2 of 2

Project Name Tinker 5001

Project No. 409832.003 01

Samples Shipment Date 11/19/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
A1558	2-62A - Soil	11/19/93 0933	glass	500ml	Cool	SVOC metals 8270 6010/7000	Good 1°C SeeRMR KDC 11-30-93	
A1558	↓ ↓	↓ ↓	↓	125ml	↓	VOC 8240		
A1559	↓ ↓	↓ 0949	↓	500ml		SVOC metals 8270 6010/7000		
A1559	↓ ↓	↓ ↓	↓	125 ml	↓	VOC 8240		
A1560	Trip Blank/water	↓ ↓	↓	40 ml	↓	VOC 8240		B3244100C 11/19/93 R 17:00

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

Auxiliary Data Summary 12/21/93

Work order : B311255 Sample ID : A1555

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
01B						
	Arsenic	B311255-10B	12043050F1	12/04/93	12/09/93	105
	Chromium VI	B311255-10B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311255-10B	1207HGAA1	12/07/93	12/07/93	115
	Lead	B311255-10B	12043050F1	12/04/93	12/09/93	421

Auxiliary Data Summary 12/21/93

Work order : B311255 Sample ID : A1555-MS

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02B						
	Arsenic	B311255-10B	12043050F1	12/04/93	12/09/93	102
	Chromium VI	B311255-10B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311255-10B	1207HGAA1	12/07/93	12/07/93	106
	Lead	B311255-10B	12043050F1	12/04/93	12/09/93	408

Auxiliary Data Summary 12/21/93

Work order : B311255 Sample ID : A1555-MSD

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03B						
	Arsenic	B311255-10B	12043050F1	12/04/93	12/09/93	85.5
	Chromium VI	B311255-10B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311255-10B	1207HGAA1	12/07/93	12/07/93	132
	Lead	B311255-10B	12043050F1	12/04/93	12/09/93	354

Auxiliary Data Summary 12/21/93

Work order : B311255

Sample ID : A1556

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04B						
	Arsenic	B311255-10B	12043050F1	12/04/93	12/09/93	115
	Chromium VI	B311255-10B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311255-10B	1207HGAA1	12/07/93	12/07/93	123
	Lead	B311255-10B	12043050F1	12/04/93	12/09/93	115

Auxiliary Data Summary 12/21/93

Work order : B311255

Sample ID : A1557

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
06B						
	Arsenic	B311255-10B	12043050F1	12/04/93	12/09/93	118
	Chromium VI	B311255-10B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311255-10B	1207HGAA1	12/07/93	12/07/93	119
	Lead	B311255-10B	12043050F1	12/04/93	12/09/93	118

Auxiliary Data Summary 12/21/93

Work order : B311255 Sample ID : A1558

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
07B						
	Arsenic	B311255-10B	12043050F1	12/04/93	12/09/93	95.2
	Chromium VI	B311255-10B	1203CR_VI1	12/03/93	12/03/93	50.0
	Mercury	B311255-10B	1207HGAA1	12/07/93	12/07/93	116
	Lead	B311255-10B	12043050F1	12/04/93	12/09/93	95.2

Auxiliary Data Summary 12/21/93

Work order : B311255 Sample ID : A1559

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
08B						
	Arsenic	B311255-10B	12043050F1	12/04/93	12/09/93	84.7
	Chromium VI	B311255-10B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311255-10B	1207HGAA1	12/07/93	12/07/93	104
	Lead	B311255-10B	12043050F1	12/04/93	12/09/93	84.7

Auxiliary Data Summary 12/21/93

Work order : B311255 Sample ID : LAB BLANK #1

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
10B						
	Arsenic	B311255-10B	12043050F1	12/04/93	12/09/93	1.0
	Chromium VI	B311255-10B	1203CR_VI1	12/03/93	12/03/93	1.0
	Mercury	B311255-10B	1207HGAA1	12/07/93	12/07/93	1.0
	Lead	B311255-10B	12043050F1	12/04/93	12/09/93	1.0

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

Routed to KK, TL, CF 12/28/93

CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 12/23/93

Work Order: B3-11-282

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O.5001 409832-003
Date Received: 11/23/93
Number of Samples: 19
Sample Type: SOIL

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1561	B3-11-282-01
A1561-MS	B3-11-282-02
A1561-MSD	B3-11-282-03
A1562	B3-11-282-04
J5432	B3-11-282-05
A1563	B3-11-282-06
A1564	B3-11-282-07
A1565	B3-11-282-08
A1566	B3-11-282-09
A1567	B3-11-282-10
A1568	B3-11-282-11
A1569	B3-11-282-12
A1570	B3-11-282-13

Reviewed and Approved:

Karmen Diane for
Jon Bartell
Laboratory Director

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003

Work Order: B3-11-282

Samples, continued from above:

SAMPLE IDENTIFICATION	LABORATORY #
A1571	B3-11-282-14
A1572	B3-11-282-15
A1573	B3-11-282-16
LAB BLANK #1	B3-11-282-17
LAB BLANK #1	B3-11-282-18
LAB BLANK #2	B3-11-282-19

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Work Order: B3-11-282

SAMPLE ID: **A1561**
SAMPLE DATE: **11/22/93 07:55:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1561**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.9	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	3.1	J	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	97	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1561**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1561**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	63	23 - 120
2-Fluorobiphenyl	65	30 - 115
Terphenyl-D14	76	18 - 137
Phenol-D5	63	24 - 113
2-Fluorophenol	52	25 - 121
2,4,6-Tribromophenol	60	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1561**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **105.263**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.0		0.86	7060	12/10/93
Aluminum	11000	*N	21	6010	12/15/93
Barium	630	*N	21	6010	12/15/93
Beryllium	0.94		0.53	6010	12/15/93
Cadmium	0.69		0.53	6010	12/15/93
Chromium	13	*	1.1	6010	12/15/93
Copper	9.8	*	2.6	6010	12/15/93
Iron	11000	*N	11	6010	12/15/93
Nickel	17	*	4.2	6010	12/15/93
Lead	5.0	N	0.26	7421	12/10/93
Mercury	0.025	U	0.025	7471	12/08/93
Silver	0.41		1.1	6010	12/15/93
Zinc	22	*	2.1	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Duplicate analysis outside control limits due to matrix interference on aluminum, barium, chromium, copper, iron, nickel and zinc analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Work Order: B3-11-282

SAMPLE ID: **A1561-MS**
SAMPLE DATE: **11/22/93 07:55:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		116		% REC	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684
Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1561-MS**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	101	Trichloroethene	79
		Benzene	93
		Toluene	94
		Chlorobenzene	94

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	99	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003

Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1561-MS**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/11/93**
DILUTION FACTOR: **0.033**
UNITS: **% REC**

	Result		Result
Phenol	63	Acenaphthene	63
2-Chlorophenol	68	4-Nitrophenol	57
1,4-Dichlorobenzene	47	2,4-Dinitrotoluene	62
N-Nitroso-di-n-propylamine	61	Pentachlorophenol	34
1,2,4-Trichlorobenzene	52	Pyrene	86
4-Chloro-3-methylphenol	64		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	51	23 - 120
2-Fluorobiphenyl	61	30 - 115
Terphenyl-D14	67	18 - 137
Phenol-D5	64	24 - 113
2-Fluorophenol	54	25 - 121
2,4,6-Tribromophenol	58	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1561-MS**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **83.3333**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	100	7060	12/10/93
Aluminum	475	6010	12/15/93
Barium	0	6010	12/15/93
Beryllium	89	6010	12/15/93
Cadmium	85	6010	12/15/93
Chromium	89	6010	12/15/93
Copper	88	6010	12/15/93
Iron	0	6010	12/15/93
Nickel	82	6010	12/15/93
Lead	210	7421	12/10/93
Mercury	115	7471	12/08/93
Silver	85	6010	12/15/93
Zinc	82	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike outside control limits due to matrix interference on aluminum, barium and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

% RPD for matrix spikes outside control limits due to matrix interference on barium and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003

Work Order: B3-11-282

SAMPLE ID: **A1561-MSD**
SAMPLE DATE: **11/22/93 07:55:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		101		% REC	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003

Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1561-MSD**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	101	Trichloroethene	79
		Benzene	92
		Toluene	94
		Chlorobenzene	93

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	101	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003

IT ANALYTICAL SERVICES
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Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1561-MSD**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/11/93**
DILUTION FACTOR: **0.033**
UNITS: **% REC**

	Result		Result
Phenol	63	Acenaphthene	69
2-Chlorophenol	68	4-Nitrophenol	49
1,4-Dichlorobenzene	68	2,4-Dinitrotoluene	52
N-Nitroso-di-n-propylamine	60	Pentachlorophenol	34
1,2,4-Trichlorobenzene	68	Pyrene	67
4-Chloro-3-methylphenol	57		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	59	23 - 120
2-Fluorobiphenyl	71	30 - 115
Terphenyl-D14	60	18 - 137
Phenol-D5	61	24 - 113
2-Fluorophenol	57	25 - 121
2,4,6-Tribromophenol	47	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003

Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1561-MSD**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **106.382**
UNITS: **% REC**

	Result	Method Reference	Analysis Date
Arsenic	110	7060	12/10/93
Aluminum	472	6010	12/15/93
Barium	0	6010	12/15/93
Beryllium	88	6010	12/15/93
Cadmium	85	6010	12/15/93
Chromium	90	6010	12/15/93
Copper	88	6010	12/15/93
Iron	154	6010	12/15/93
Nickel	84	6010	12/15/93
Lead	130	7421	12/10/93
Mercury	115	7471	12/08/93
Silver	84	6010	12/15/93
Zinc	83	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Referenced notes for these results:

Matrix spike duplicate outside control limits due to matrix interference on aluminum, barium and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

% RPD for matrix spikes outside control limits due to matrix interference on barium and iron analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003

Work Order: B3-11-282

SAMPLE ID: **A1562**
SAMPLE DATE: **11/22/93 08:04:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1562**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	1.9	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.8	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	6.7		5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	81 - 117
BROMOFLUOROBENZENE	98	74 - 121
1,2-DICHLOROETHANE-D4	100	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1562**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1562**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	58	23 - 120
2-Fluorobiphenyl	67	30 - 115
Terphenyl-D14	76	18 - 137
Phenol-D5	57	24 - 113
2-Fluorophenol	49	25 - 121
2,4,6-Tribromophenol	56	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1562**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **95.2380**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	3.4		0.95	7060	12/10/93
Aluminum	15000	*N	19	6010	12/15/93
Barium	32	*N	19	6010	12/15/93
Beryllium	1.3		0.48	6010	12/15/93
Cadmium	0.48	U	0.48	6010	12/15/93
Chromium	14	*	0.95	6010	12/15/93
Copper	22	*	2.4	6010	12/15/93
Iron	11000	*N	9.5	6010	12/15/93
Nickel	25	*	3.8	6010	12/15/93
Lead	5.0	N	0.29	7421	12/10/93
Mercury	0.022	U	0.022	7471	12/08/93
Silver	0.95	U	0.95	6010	12/15/93
Zinc	29	*	1.9	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684
Work Order: B3-11-282

SAMPLE ID: **A1563**
SAMPLE DATE: **11/22/93 08:25:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1563**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5.6		5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	97	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1563**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
AUSTIN, TX
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1563**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	72	23 - 120
2-Fluorobiphenyl	77	30 - 115
Terphenyl-D14	79	18 - 137
Phenol-D5	66	24 - 113
2-Fluorophenol	54	25 - 121
2,4,6-Tribromophenol	61	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003

Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1563**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **109.890**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	5.4		1.1	7060	12/10/93
Aluminum	10000	*N	22	6010	12/15/93
Barium	22	U*N	22	6010	12/15/93
Beryllium	1.2		0.55	6010	12/15/93
Cadmium	0.55	U	0.55	6010	12/15/93
Chromium	14	*	1.1	6010	12/15/93
Copper	21	*	2.7	6010	12/15/93
Iron	14000	*N	11	6010	12/15/93
Nickel	21	*	4.4	6010	12/15/93
Lead	7.1	N	0.32	7421	12/10/93
Mercury	0.024	U	0.024	7471	12/08/93
Silver	1.1	U	1.1	6010	12/15/93
Zinc	22	*	2.2	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684
Work Order: B3-11-282

SAMPLE ID: **A1564**
SAMPLE DATE: **11/22/93 08:38:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1564**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.0	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.8	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5.2		5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	81 - 117
BROMOFLUOROBENZENE	97	74 - 121
1,2-DICHLOROETHANE-D4	99	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1564**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1564**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	50	23 - 120
2-Fluorobiphenyl	53	30 - 115
Terphenyl-D14	61	18 - 137
Phenol-D5	56	24 - 113
2-Fluorophenol	47	25 - 121
2,4,6-Tribromophenol	49	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1564**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **105.263**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.2		1.1	7060	12/10/93
Aluminum	1700	*N	21	6010	12/15/93
Barium	21	U*N	21	6010	12/15/93
Beryllium	0.53	U	0.53	6010	12/15/93
Cadmium	0.57		0.53	6010	12/15/93
Chromium	7.6	*	1.1	6010	12/15/93
Copper	1.7	*	2.6	6010	12/15/93
Iron	7300	*N	11	6010	12/15/93
Nickel	7.3	*	4.2	6010	12/15/93
Lead	3.2	N	0.32	7421	12/10/93
Mercury	0.023	U	0.023	7471	12/08/93
Silver	1.1	U	1.1	6010	12/15/93
Zinc	7.1	*	2.1	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

Work Order: B3-11-282

SAMPLE ID: **A1565**
SAMPLE DATE: **11/22/93 08:38:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

IT ANALYTICAL SERVICES
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(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1565**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	5.8	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5.4		5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	100	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1565**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1565**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	52	23 - 120
2-Fluorobiphenyl	59	30 - 115
Terphenyl-D14	59	18 - 137
Phenol-D5	60	24 - 113
2-Fluorophenol	49	25 - 121
2,4,6-Tribromophenol	51	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003 Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1565**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **107.526**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.1	U	1.1	7060	12/10/93
Aluminum	750	*N	22	6010	12/15/93
Barium	60	*N	22	6010	12/15/93
Beryllium	0.54	U	0.54	6010	12/15/93
Cadmium	0.54	U	0.54	6010	12/15/93
Chromium	3.0	*	1.1	6010	12/15/93
Copper	1.1	*	2.7	6010	12/15/93
Iron	2400	*N	11	6010	12/15/93
Nickel	4.3	U*	4.3	6010	12/15/93
Lead	1.5	N	0.32	7421	12/10/93
Mercury	0.023	U	0.023	7471	12/08/93
Silver	1.1	U	1.1	6010	12/15/93
Zinc	3.1	*	2.2	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1566**
SAMPLE DATE: **11/16/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/30/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	98	88 - 110
BROMOFLUOROBENZENE	99	86 - 115
1,2-DICHLOROETHANE-D4	107	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

SAMPLE ID: **A1567**
SAMPLE DATE: **11/22/93 16:00:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
9071/418.1 for TPH		10U	10	MG/KG	12/07/93	EPA9071
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1567**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	8.3	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5.4		5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	81 - 117
BROMOFLUOROBENZENE	95	74 - 121
1,2-DICHLOROETHANE-D4	102	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1567**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/10/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1567**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	51	23 - 120
2-Fluorobiphenyl	55	30 - 115
Terphenyl-D14	53	18 - 137
Phenol-D5	60	24 - 113
2-Fluorophenol	48	25 - 121
2,4,6-Tribromophenol	45	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003

Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1567**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **108.695**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.4		1.2	7060	12/10/93
Aluminum	11000	*N	22	6010	12/15/93
Barium	410	*N	22	6010	12/15/93
Beryllium	1.1		0.54	6010	12/15/93
Cadmium	0.78		0.54	6010	12/15/93
Chromium	15	*	1.1	6010	12/15/93
Copper	7.2	*	2.7	6010	12/15/93
Iron	14000	*N	11	6010	12/15/93
Nickel	15	*	4.3	6010	12/15/93
Lead	6.0	N	0.35	7421	12/10/93
Mercury	0.023	U	0.023	7471	12/08/93
Silver	1.1	U	1.1	6010	12/15/93
Zinc	18	*	2.2	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

IT ANALYTICAL SERVICES
AUSTIN, TX
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

Work Order: B3-11-282

SAMPLE ID: **A1568**
SAMPLE DATE: **11/22/93 16:23:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
9071/418.1 for TPH		10U	10	MG/KG	12/07/93	EPA9071
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1568**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	7.0	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	2.7	J	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	81 - 117
BROMOFLUOROBENZENE	98	74 - 121
1,2-DICHLOROETHANE-D4	100	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1568**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/10/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1568**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	45	23 - 120
2-Fluorobiphenyl	52	30 - 115
Terphenyl-D14	47	18 - 137
Phenol-D5	47	24 - 113
2-Fluorophenol	40	25 - 121
2,4,6-Tribromophenol	40	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1568**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **102.040**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	4.7		1.1	7060	12/10/93
Aluminum	12000	*N	20	6010	12/15/93
Barium	190	*N	20	6010	12/15/93
Beryllium	1.2		0.51	6010	12/15/93
Cadmium	0.88		0.51	6010	12/15/93
Chromium	17	*	1.0	6010	12/15/93
Copper	11	*	2.6	6010	12/15/93
Iron	15000	*N	10	6010	12/15/93
Nickel	26	*	4.1	6010	12/15/93
Lead	6.2	N	0.33	7421	12/10/93
Mercury	0.023	U	0.023	7471	12/08/93
Silver	0.56	U	1.0	6010	12/15/93
Zinc	27	*	2.0	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

SAMPLE ID: **A1569**
SAMPLE DATE: **11/22/93 16:23:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
9071/418.1 for TPH		10U	10	MG/KG	12/07/93	EPA9071
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1569**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	9.4	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5.8		5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	99	81 - 117
BROMOFLUOROBENZENE	95	74 - 121
1,2-DICHLOROETHANE-D4	101	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1569**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/10/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1569**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	45	23 - 120
2-Fluorobiphenyl	53	30 - 115
Terphenyl-D14	48	18 - 137
Phenol-D5	50	24 - 113
2-Fluorophenol	41	25 - 121
2,4,6-Tribromophenol	41	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1569**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **108.695**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	3.7		0.98	7060	12/10/93
Aluminum	10000	*N	22	6010	12/15/93
Barium	22	U*N	22	6010	12/15/93
Beryllium	1.0		0.54	6010	12/15/93
Cadmium	0.59		0.54	6010	12/15/93
Chromium	13	*	1.1	6010	12/15/93
Copper	11	*	2.7	6010	12/15/93
Iron	12000	*N	11	6010	12/15/93
Nickel	23	*	4.3	6010	12/15/93
Lead	5.8	N	0.29	7421	12/10/93
Mercury	0.024	U	0.024	7471	12/08/93
Silver	0.45		1.1	6010	12/15/93
Zinc	24	*	2.2	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

SAMPLE ID: **A1570**
SAMPLE DATE: **11/22/93 16:30:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
9071/418.1 for TPH		10U	10	MG/KG	12/09/93	EPA9071
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1570**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	7.3	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5.1		5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	81 - 117
BROMOFLUOROBENZENE	98	74 - 121
1,2-DICHLOROETHANE-D4	100	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1570**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/10/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporti Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
AUSTIN, TX
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1570**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	47	23 - 120
2-Fluorobiphenyl	52	30 - 115
Terphenyl-D14	47	18 - 137
Phenol-D5	68	24 - 113
2-Fluorophenol	50	25 - 121
2,4,6-Tribromophenol	55	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003

Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1570**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **85.4700**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.8		0.97	7060	12/10/93
Aluminum	10000	*N	17	6010	12/15/93
Barium	17	U*N	17	6010	12/15/93
Beryllium	1.2		0.43	6010	12/15/93
Cadmium	1.0		0.43	6010	12/15/93
Chromium	21	*	0.85	6010	12/15/93
Copper	10	*	2.1	6010	12/15/93
Iron	20000	*N	8.5	6010	12/15/93
Nickel	24	*	3.4	6010	12/15/93
Lead	3.8	N	0.29	7421	12/10/93
Mercury	0.022	U	0.022	7471	12/13/93
Silver	0.85	U	0.85	6010	12/15/93
Zinc	30	*	1.7	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

SAMPLE ID: **A1571**
SAMPLE DATE: **11/22/93 16:48:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
9071/418.1 for TPH		10U	10	MG/KG	12/07/93	EPA9071
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003

Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1571**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.2	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.2	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5.2		5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	81 - 117
BROMOFLUOROBENZENE	100	74 - 121
1,2-DICHLOROETHANE-D4	100	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1571**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/11/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

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AUSTIN, TX
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1571**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	52	23 - 120
2-Fluorobiphenyl	66	30 - 115
Terphenyl-D14	66	18 - 137
Phenol-D5	59	24 - 113
2-Fluorophenol	52	25 - 121
2,4,6-Tribromophenol	55	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1571**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **102.040**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	5.5		0.89	7060	12/10/93
Aluminum	15000	*N	20	6010	12/15/93
Barium	18	*N	20	6010	12/15/93
Beryllium	1.5		0.51	6010	12/15/93
Cadmium	0.95		0.51	6010	12/15/93
Chromium	17	*	1.0	6010	12/15/93
Copper	16	*	2.6	6010	12/15/93
Iron	13000	*N	10	6010	12/15/93
Nickel	28	*	4.1	6010	12/15/93
Lead	9.9	N	1.1	7421	12/10/93
Mercury	0.026	U	0.026	7471	12/08/93
Silver	1.0	U	1.0	6010	12/15/93
Zinc	32	*	2.0	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

SAMPLE ID: **A1572**
SAMPLE DATE: **11/22/93 16:58:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
9071/418.1 for TPH		10U	10	MG/KG	12/07/93	EPA9071
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

IT ANALYTICAL SERVICES
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(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1572**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.1	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	6.1	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5.3		5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	81 - 117
BROMOFLUOROBENZENE	98	74 - 121
1,2-DICHLOROETHANE-D4	102	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1572**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/10/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1572**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	41	23 - 120
2-Fluorobiphenyl	47	30 - 115
Terphenyl-D14	58	18 - 137
Phenol-D5	68	24 - 113
2-Fluorophenol	47	25 - 121
2,4,6-Tribromcphenol	55	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1572**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **102.040**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	2.6		1.1	7060	12/10/93
Aluminum	9700	*N	20	6010	12/15/93
Barium	25	*N	20	6010	12/15/93
Beryllium	1.2		0.51	6010	12/15/93
Cadmium	0.51	U	0.51	6010	12/15/93
Chromium	14	*	1.0	6010	12/15/93
Copper	16	*	2.6	6010	12/15/93
Iron	14000	*N	10	6010	12/15/93
Nickel	21	*	4.1	6010	12/15/93
Lead	5.0	N	0.33	7421	12/10/93
Mercury	0.023	U	0.023	7471	12/08/93
Silver	1.0	U	1.0	6010	12/15/93
Zinc	22	*	2.0	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

Work Order: B3-11-282

SAMPLE ID: **A1573**
SAMPLE DATE: **11/22/93 17:15:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
9071/418.1 for TPH		10U	10	MG/KG	12/07/93	EPA9071
Chromium VI		0.50U	0.50	MG/KG	12/03/93	EPA7196

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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AUSTIN, TX
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409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1573**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	2.0	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	5.7	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5.6		5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	98	81 - 117
BROMOFLUOROBENZENE	99	74 - 121
1,2-DICHLOROETHANE-D4	100	70 - 120

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1573**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/10/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1573**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	41	23 - 120
2-Fluorobiphenyl	46	30 - 115
Terphenyl-D14	68	18 - 137
Phenol-D5	54	24 - 113
2-Fluorophenol	43	25 - 121
2,4,6-Tribromcphenol	58	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

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409832-003 Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1573**
SAMPLE DATE: **11/22/93**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **85.4700**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	1.1	U	1.1	7060	12/10/93
Aluminum	1500	*N	17	6010	12/15/93
Barium	17	U*N	17	6010	12/15/93
Beryllium	0.43	U	0.43	6010	12/15/93
Cadmium	0.58		0.43	6010	12/15/93
Chromium	7.3	*	0.85	6010	12/15/93
Copper	2.1	U*	2.1	6010	12/15/93
Iron	6100	*N	8.5	6010	12/15/93
Nickel	5.1	*	3.4	6010	12/15/93
Lead	1.9	N	0.32	7421	12/10/93
Mercury	0.024	U	0.024	7471	12/08/93
Silver	0.85	U	0.85	6010	12/15/93
Zinc	5.9	*	1.7	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
9071/418.1 for TPH		10U	10	MG/KG	12/07/93	EPA9071
Chromium VI		0.010U	0.010	MG/KG	12/03/93	EPA7196

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/02/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	102	81 - 117
BROMOFLUOROBENZENE	101	74 - 121
1,2-DICHLOROETHANE-D4	98	70 - 120

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
EXTRACTION DATE: **11/30/93**
ANALYSIS DATE: **12/09/93**
DILUTION FACTOR: **0.033**
UNITS: **MG/KG**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	0.330	U	0.330	2,6-Dinitrotoluene	0.330	U	0.330
bis(2-Chloroethyl)ether	0.330	U	0.330	3-Nitroaniline	0.825	U	0.825
2-Chlorophenol	0.330	U	0.330	Acenaphthene	0.330	U	0.330
1,3-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrophenol	0.825	U	0.825
1,4-Dichlorobenzene	0.330	U	0.330	4-Nitrophenol	0.825	U	0.825
Benzyl alcohol	0.330	U	0.330	Dibenzofuran	0.330	U	0.330
1,2-Dichlorobenzene	0.330	U	0.330	2,4-Dinitrotoluene	0.330	U	0.330
2-Methylphenol	0.330	U	0.330	Diethylphthalate	0.330	U	0.330
bis(2-Chloroisopropyl)ether	0.330	U	0.330	4-Chlorophenyl-phenylether	0.330	U	0.330
4-Methylphenol	0.330	U	0.330	Fluorene	0.330	U	0.330
N-Nitroso-di-n-propylamine	0.330	U	0.330	4-Nitroaniline	0.825	U	0.825
Hexachloroethane	0.330	U	0.330	4,6-Dinitro-2-methylphenol	0.825	U	0.825
Nitrobenzene	0.330	U	0.330	N-Nitrosodiphenylamine (1)	0.330	U	0.330
Isophorone	0.330	U	0.330	4-Bromophenyl-phenylether	0.330	U	0.330
2-Nitrophenol	0.330	U	0.330	Hexachlorobenzene	0.330	U	0.330
2,4-Dimethylphenol	0.330	U	0.330	Pentachlorophenol	0.825	U	0.825
Benzoic Acid	0.330	U	0.330	Phenanthrene	0.330	U	0.330
bis(2-Chloroethoxy)methane	0.330	U	0.330	Anthracene	0.330	U	0.330
2,4-Dichlorophenol	0.330	U	0.330	Di-n-butylphthalate	0.330	U	0.330
1,2,4-Trichlorobenzene	0.330	U	0.330	Fluoranthene	0.330	U	0.330
Naphthalene	0.330	U	0.330	Pyrene	0.330	U	0.330
4-Chloroaniline	0.330	U	0.330	Butylbenzylphthalate	0.330	U	0.330
Hexachlorobutadiene	0.330	U	0.330	3,3'-Dichlorobenzidine	0.330	U	0.330
4-Chloro-3-methylphenol	0.330	U	0.330	Benzo(a)anthracene	0.330	U	0.330
2-Methylnaphthalene	0.330	U	0.330	Chrysene	0.330	U	0.330
Hexachlorocyclopentadiene	0.330	U	0.330	bis(2-Ethylhexyl)phthalate	0.330	U	0.330
2,4,6-Trichlorophenol	0.330	U	0.330	Di-n-octylphthalate	0.330	U	0.330
2,4,5-Trichlorophenol	0.825	U	0.825	Benzo(b)fluoranthene	0.330	U	0.330
2-Chloronaphthalene	0.330	U	0.330	Benzo(k)fluoranthene	0.330	U	0.330
2-Nitroaniline	0.825	U	0.825	Benzo(a)pyrene	0.330	U	0.330
Dimethylphthalate	0.330	U	0.330	Indeno(1,2,3-cd)pyrene	0.330	U	0.330
Acenaphthylene	0.330	U	0.330	Dibenzo(a,h)anthracene	0.330	U	0.330
				Benzo(g,h,i)perylene	0.330	U	0.330

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AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	37	23 - 120
2-Fluorobiphenyl	40	30 - 115
Terphenyl-D14	71	18 - 137
Phenol-D5	42	24 - 113
2-Fluorophenol	34	25 - 121
2,4,6-Tribromophenol	53	19 - 122

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
DILUTION FACTOR (6010): **1.0**
UNITS: **MG/KG**

	Result	Result Qual	Reporting Limit	Method Reference	Analysis Date
Arsenic	0.010	U	0.010	7060	12/10/93
Aluminum	0.20	U	0.20	6010	12/15/93
Barium	0.20	U	0.20	6010	12/15/93
Beryllium	0.0050	U	0.0050	6010	12/15/93
Cadmium	0.0050	U	0.0050	6010	12/15/93
Chromium	0.010	U	0.010	6010	12/15/93
Copper	0.0250	U	0.0250	6010	12/15/93
Iron	0.10	U	0.10	6010	12/15/93
Nickel	0.040	U	0.040	6010	12/15/93
Lead	0.0030	U	0.0030	7421	12/10/93
Mercury	0.00020	U	0.00020	7471	12/08/93
Silver	0.010	U	0.010	6010	12/15/93
Zinc	0.020	U	0.020	6010	12/15/93

Data qualifier key:
E - estimated value
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

NOTE: Dilution Factor applies to Method 6010 only.

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **11/30/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	99	88 - 110
BROMOFLUOROBENZENE	101	86 - 115
1,2-DICHLOROETHANE-D4	101	76 - 114

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

SAMPLE ID: **LAB BLANK #2**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Mercury		0.00020U	0.00020	MG/KG	12/13/93	EPA7471

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **ICP Metals** TEST CODE **6010**

Metals by ICP	Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables	Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **9071/418.1 for TPH** TEST CODE **9071IR**

9071 Prep and IR Analysis	Method 9071, SW846, Test Methods for Evaluating Solid Waste, Third Edition. Soxhlet extraction from Method 9071 using freon and infrared analysis of the extract using Method 418.1.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace	Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **Cation Exchange Capacity** TEST CODE **CEC_A**

Cation exchange Capacity	Part 2: Chemical and microbiological properties method 57-3. American Society of Agronomy, Methods of soil Analysis 2nd Edition.

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001 409832-003 Work Order: B3-11-282

TEST NAME **Chromium VI** TEST CODE **CR_VI**

Chromium VI	Method 7196, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Colorimetric analysis. Equivalent to Standard Methods 3500-Cr D.

TEST NAME **Grain Size Distriubtion** TEST CODE **GRAIN**

Method not available.

TEST NAME **Mercury** TEST CODE **HG_AA**

Mercury	Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water. Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK2**

Method not available.

TEST NAME **Moisture Content** TEST CODE **MOIS_G**

Method not available.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055,

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Company: IT CORPORATION
Date: 12/23/93
Client Work ID: D.O.5001

409832-003

Work Order: B3-11-282

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

December 1982.

TEST NAME **Vertical Permeability** TEST CODE **V_PERM**

Method not available.

TEST NAME **GFAA Digestion - Soil** TEST CODE **Z3050F**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace/Flame AA analysis.

TEST NAME **ICPES Digestion - Soil** TEST CODE **Z3050P**

Soil Digestion	Method 3050, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for ICPES analysis. Equivalent to Method 3050A, SW-846 Update I, July 1992.

6311282

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 314097
Page 1 of 2

Project Name/No. [1] TAFB 409832 | Samples Shipment Date [7] 11/22/93 | Bill to: [5] 409832.03 DO 5001

Sample Team Members [2] K. Herrington, M. Wilson | Lab Destination [8] ITAS Austin

Profit Center No. [3] 3527 | Lab Contact [9] Karmen Dennis 405-736-2260

Project Manager [4] Jimmy Taylor | Project Contact/Phone [12] Dan McGregor | Report to: [10] Tim Jennings I. T. Austin

Purchase Order No. [6] 409832 003 | Carrier/Waybi 846075618 3 - FedEx

Required Report Date [11] 15 working Days

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
A1561	2-6213; Soil	11-22-93 0755	glass	(2) 500ml	Cool	8270 6010/7000	6 jars 11-23-93 KVA OK	
A1561		0755 KH 0804		125ml		8240		
A1562		0804		500ml		8270 6010/7000		
J5428 KH A1562		0804		125ml		8240		
J5428		0815	stainless steel	(3) 1.5x6"		geotechnical - Vent K, moisture, CEC, grain size		
A1563		0825	glass	500ml		8270 6010/7000		
A1563		0825		125ml		8240		
A1564		0830		500ml		8270 6010/7000		

Special Instructions: [23] A1561 MS/MSD; A1566 - Trip Blank; A1569 Duplicate of A1568

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☑ Archive (mos.)

Turnaround Time Required: [26]
Normal ☑ Rush ☐

QC Level: [27]
I. ☑ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation) Karen Herrington, IT — Date: 11/22/93 Time: 1800	1. Received by [28] (Signature/Affiliation) IT — Date: 11-23-93 Time: 0856
2. Relinquished by (Signature/Affiliation) — Date: Time:	2. Received by (Signature/Affiliation) — Date: Time:
3. Relinquished by (Signature/Affiliation) — Date: Time:	3. Received by (Signature/Affiliation) — Date: Time:

Comments: [29]

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

B311282

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 314047

Page 2 of 2

Project Name Tinker 5001

Project No. 409832.03

Samples Shipment Date 11/22/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
A1564	2-62B, soil	11/22/93 0838	~~glass 125 ml~~ KH	KH X125ml	cool	8240	Good, yde 11-28-93 RVA	
A1565	↓ ↓	↓	↓	500ml	↓	8270 6010/7000		
A1565				125ml		8240		
A1566	Trip Blank KH KH	11/22/93 0838	↓	40 ml	HCl	8240		11-16-93 1700 TK 33244.00C
A1567	2-61; soil	11/22/93 1600		500 ml	cool	8270 418.1 6010/7000		
A1567		↓		125 ml		8240		
A1568		1623		500 ml		8270 418.1 6010/7000		
A1568		↓		125 ml		8240		
A1569		1628		500 ml		8270 418.1 6010/7000		
A1569		↓		125 ml		8240		
A1570		1630		500 ml		8270 418.1 6010/7000		
A1570		↓	↓	125 ml	↓	8240		
A1571		1648		500 ml		8270 418.1 6010/7000		
A1571		↓		125 ml		8240		
A1572		1658		500 ml		8270 418.1 6010/7000		
A1572		↓	↓	125 ml	↓	8240		
A1573		1715	↓	500ml		8270 418.1 6010/7000		
A1573	↓ ↓	↓ ↓	↓	125 ml	↓	8240	↓	

White: To accompany samples Yellow: Field copy

*See back of form for special instructions

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1561

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
01B						
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	86.2
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	125
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	86.2

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1561-MS

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02B						
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	104
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	120
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	417

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1561-MSD

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03B						
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	103
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	123
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	103

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1562

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04B						
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	95.2
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA2	12/08/93	12/08/93	112
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	95.2

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1563

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
06B						
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	105
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	118
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	105

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1564

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
07B						
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	108
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	116
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	108

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1565

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
08B						
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	108
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	116
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	108

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1567

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
10B						
	9071IR	B311282-17B	1206TPHIR1	12/06/93	12/07/93	1.0
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	115
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	114
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	115

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1568

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
11B						
	9071IR	B311282-17B	1206TPHIR1	12/06/93	12/07/93	1.0
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	110
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	116
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	110

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1569

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
12B						
	9071IR	B311282-17B	1206TPHIR1	12/06/93	12/07/93	1.0
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	98
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	122
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	98

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1570

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
13B						
	9071IR	B311282-17B	1206TPHIR1	12/06/93	12/09/93	1.0
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	97.1
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1212HGAA1	12/13/93	12/13/93	108
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	97.1

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1571

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
14B						
	9071IR	B311282-17B	1206TPHIR1	12/06/93	12/07/93	1.0
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	89.3
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	129
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	357

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1572

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
15B						
	9071IR	B311282-17B	1206TPHIR1	12/06/93	12/07/93	1.0
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	111
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	115
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	111

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : A1573

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
16B						
	9071IR	B311282-17B	1206TPHIR1	12/06/93	12/07/93	1.0
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	106
	Chromium VI	B311282-17B	1203CR_VI1	12/02/93	12/03/93	50.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	118
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	106

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : LAB BLANK #1

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
17B						
	9071IR	B311282-17B	1206TPHIR1	12/06/93	12/07/93	1.0
	Arsenic	B311282-17B	12053050F1	12/05/93	12/10/93	1.0
	Chromium VI	B311282-17B	1203CR_VI1	12/03/93	12/03/93	1.0
	Mercury	B311282-17B	1208HGAA1	12/08/93	12/08/93	1.0
	Lead	B311282-17B	12053050F1	12/05/93	12/10/93	1.0

Auxiliary Data Summary 12/21/93

Work order : B311282 Sample ID : LAB BLANK #2

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
19A	Mercury	B311282-19A	1213HGAA1	12/13/93	12/13/93	1.0

TPJ

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

1/11/94
Routed to CF IT_

CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 01/11/94

Work Order: B3-12-169

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O. 5001 409832-003-01
Date Received: 12/14/93
Number of Samples: 7
Sample Type: WATER

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1606	B3-12-169-01
A1607	B3-12-169-02
A1608	B3-12-169-03
A1609	B3-12-169-04
A1609-MS	B3-12-169-05
A1609-MSD	B3-12-169-06
LAB BLANK #1	B3-12-169-07

Reviewed and Approved:

Jon Bartell
Laboratory Director

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1606**
SAMPLE DATE: **12/02/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/27/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	2.9	J	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	99	88 - 110
BROMOFLUOROBENZENE	100	86 - 115
1,2-DICHLOROETHANE-D4	94	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-169

SAMPLE ID: **A1607**
SAMPLE DATE: **12/13/93 15:00:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		380	10	MG/L as CaCo3	12/15/93	EPA310_1
TPH - IR		0.96U	0.96	MG/L	12/28/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		17	10	MG/L	01/05/94	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/14/93	EPA7196
Nitrate and Nitrite		3.3	0.50	MG/L	01/05/94	EPA353_2
Silica		8.8	2.0	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		17N	10	MG/L	01/05/94	EPA300_0
Total Dissolved Solids		190	10	MG/L	12/15/93	EPA160_1
Total Kjeldahl Nitrogen		0.25UN	0.25	MG/L	01/10/94	EPA351_3
Total Organic Carbon		1.0U	1.0	MG/L	12/20/93	EPA415_1
Total Suspended Solids		1900	20	MG/L	12/15/93	EPA160_2
Total Phosphorus		0.19N	0.10	MG/L	01/10/94	EPA365_3

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-169

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1607**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/27/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	88 - 110
BROMOFLUOROBENZENE	103	86 - 115
1,2-DICHLOROETHANE-D4	96	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1607**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/16/93**
ANALYSIS DATE: **12/30/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1607**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	90	35 - 114
2-Fluorobiphenyl	92	43 - 116
Terphenyl-D14	89	33 - 141
Phenol-D5	80	10 - 94
2-Fluorophenol	80	21 - 100
2,4,6-Tribromophenol	95	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1607**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	32	N	0.20
Barium	3.7		0.20
Cadmium	0.0066		0.0050
Calcium	100		5.0
Chromium	0.12	N	0.010
Copper	0.10		0.025
Iron	57		0.10
Magnesium	57		5.0
Manganese	1.2	N	0.015
Nickel	0.079	N	0.040
Potassium	7.3		5.0
Selenium	0.10	UN	0.10
Silver	0.010	U	0.010
Sodium	25		5.0
Zinc	0.10	N	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-169

SAMPLE ID: **A1608**
SAMPLE DATE: **12/13/93 15:35:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		350	10	MG/L as CaCo3	12/15/93	EPA310_1
TPH - IR		0.96U	0.96	MG/L	12/28/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		26	10	MG/L	01/05/94	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/14/93	EPA7196
Nitrate and Nitrite		1.1	0.050	MG/L	01/05/94	EPA353_2
Silica		8.6	2.0	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		14N	10	MG/L	01/05/94	EPA300_0
Total Dissolved Solids		388	10	MG/L	12/15/93	EPA160_1
Total Kjeldahl Nitrogen		0.25UN	0.25	MG/L	01/10/94	EPA351_3
Total Organic Carbon		1.0U	1.0	MG/L	12/20/93	EPA415_1
Total Suspended Solids		200	10	MG/L	12/15/93	EPA160_2
Total Phosphorus		0.10UN	0.10	MG/L	01/10/94	EPA365_3

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1608**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/27/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	88 - 110
BROMOFLUOROBENZENE	102	86 - 115
1,2-DICHLOROETHANE-D4	97	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-169

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1608**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/16/93**
ANALYSIS DATE: **12/30/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-169

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1608**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	88	35 - 114
2-Fluorobiphenyl	83	43 - 116
Terphenyl-D14	87	33 - 141
Phenol-D5	77	10 - 94
2-Fluorophenol	74	21 - 100
2,4,6-Tribromophenol	90	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1608**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	2.9	N	0.20
Barium	0.56		0.20
Cadmium	0.0050	U	0.0050
Calcium	61		5.0
Chromium	0.075	N	0.010
Copper	0.025	U	0.025
Iron	4.8		0.10
Magnesium	35		5.0
Manganese	0.12	N	0.015
Nickel	0.067	N	0.040
Potassium	5.0	U	5.0
Selenium	0.10	UN	0.10
Silver	0.010	U	0.010
Sodium	23		5.0
Zinc	0.021	N	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

SAMPLE ID: **A1609**
SAMPLE DATE: **12/13/93 16:00:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		190	10	MG/L as CaCo3	12/15/93	EPA310_1
TPH - IR		0.96U	0.96	MG/L	12/28/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		24	10	MG/L	01/05/94	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/14/93	EPA7196
Nitrate and Nitrite		0.78	0.050	MG/L	01/05/94	EPA353_2
Silica		11	5.0	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		24N	10	MG/L	01/05/94	EPA300_0
Total Dissolved Solids		258	10	MG/L	12/15/93	EPA160_1
Total Kjeldahl Nitrogen		0.26N	0.25	MG/L	01/10/94	EPA351_3
Total Organic Carbon		1.0U	1.0	MG/L	12/20/93	EPA415_1
Total Suspended Solids		10U	10	MG/L	12/15/93	EPA160_2
Total Phosphorus		3.9N	0.10	MG/L	01/10/94	EPA365_3

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1609**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/27/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	103	88 - 110
BROMOFLUOROBENZENE	106	86 - 115
1,2-DICHLOROETHANE-D4	96	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1609**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/16/93**
ANALYSIS DATE: **12/30/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	1.4	JB	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-169

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1609**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	80	35 - 114
2-Fluorobiphenyl	83	43 - 116
Terphenyl-D14	75	33 - 141
Phenol-D5	75	10 - 94
2-Fluorophenol	72	21 - 100
2,4,6-Tribromophenol	87	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1609**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.0
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	2.8	N	0.20
Barium	0.20	U	0.20
Cadmium	0.0050	U	0.0050
Calcium	36		5.0
Chromium	0.053	N	0.010
Copper	0.025	U	0.025
Iron	4.3		0.10
Magnesium	19		5.0
Manganese	0.067	N	0.015
Nickel	0.040	UN	0.040
Potassium	5.0	U	5.0
Selenium	0.010	UN	0.010
Silver	0.010	U	0.010
Sodium	22		5.0
Zinc	0.028	N	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

SAMPLE ID: **A1609-MS**
SAMPLE DATE: **12/13/93 16:00:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric	1	190	10	MG/L AS CACO3	12/15/93	EPA310_1
TPH - IR		95		% REC	12/20/93	EPA418_1
Phenolics		78		% REC	01/06/94	EPA9066
Chloride by Ion Chrom.		90		% REC	01/05/94	EPA300_0
Chemical Oxygen Demand		106		% REC	12/28/93	EPA410_4
Chromium VI		102		% REC	12/14/93	EPA7196
Nitrate and Nitrite		110		% REC	01/05/94	EPA353_2
Silica		94		% REC	12/29/93	370_1
Sulfate by Ion Chrom.	2	79		% REC	01/05/94	EPA300_0
Total Dissolved Solids	3	260	10	MG/L	12/15/93	EPA160_1
Total Kjeldahl Nitrogen		82		% REC	01/10/94	EPA351_3
Total Organic Carbon		114		% REC	12/20/93	EPA415_1
Total Suspended Solids	4	140	10	MG/L	12/15/93	EPA160_2
Total Phosphorus	5	0		% REC	01/10/94	EPA365_3

Referenced notes for these results:

1 Duplicate analysis performed in lieu of a matrix spike.

2 Matrix spike recovery outside control limits due to matrix interference of sulfate analysis by IC. LCS / LCSD results and all other method Quality Control within acceptance limits.

3 Duplicate analysis performed in lieu of a matrix spike.

4 Duplicate analysis performed in lieu of a matrix spike.

5 Matrix spike outside control limits due to matrix interference. LCS and method Quality Control were acceptable.

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-169

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1609-MS**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/27/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	109	Trichloroethene	99
		Benzene	102
		Toluene	100
		Chlorobenzene	101

Surrogates	% Recovery	Limits
TOLUENE-D8	104	88 - 110
BROMOFLUOROBENZENE	102	86 - 115
1,2-DICHLOROETHANE-D4	96	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1609-MS**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/16/93**
ANALYSIS DATE: **12/30/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
Phenol	82	Acenaphthene	93
2-Chlorophenol	90	4-Nitrophenol	89
1,4-Dichlorobenzene	81	2,4-Dinitrotoluene	81
N-Nitroso-di-n-propylamine	79	Pentachlorophenol	113
1,2,4-Trichlorobenzene	86	Pyrene	92
4-Chloro-3-methylphenol	92		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	92	35 - 114
2-Fluorobiphenyl	90	43 - 116
Terphenyl-D14	85	33 - 141
Phenol-D5	79	10 - 94
2-Fluorophenol	77	21 - 100
2,4,6-Tribromophenol	98	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-169

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1609-MS**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000
UNITS: **% REC**

	Result
Aluminum	120
Barium	106
Cadmium	81
Calcium	97
Chromium	81
Copper	82
Iron	85
Magnesium	96
Manganese	77
Nickel	81
Potassium	102
Selenium	81
Silver	82
Sodium	96
Zinc	80

Data qualifier key:

E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
\+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Referenced notes for these results:

Matrix spike recovery outside control limits due to matrix interference of manganese analysis by ICPES. LCS / LCSD results and all method Quality Control within acceptance limits.

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

SAMPLE ID: **A1609-MSD**
SAMPLE DATE: **12/13/93 16:00:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric	1	190	10	MG/L AS CACO3	12/15/93	EPA310_1
TPH - IR		100		% REC	02/20/93	EPA418_1
Phenolics		81		% REC	01/06/94	EPA9066
Chloride by Ion Chrom.		91		% REC	01/05/94	EPA300_0
Chemical Oxygen Demand		110		% REC	12/28/93	EPA410_4
Chromium VI		104		% REC	12/14/93	EPA7196
Nitrate and Nitrite		99		% REC	01/05/94	EPA353_2
Silica		108		% REC	12/29/93	370_1
Sulfate by Ion Chrom.	2	69		% REC	01/05/94	EPA300_0
Total Dissolved Solids	3	260	10	MG/L	12/15/93	EPA160_1
Total Kjeldahl Nitrogen	4	68		% REC	01/10/94	EPA351_3
Total Organic Carbon		0		% REC	12/20/93	EPA415_1
Total Suspended Solids	5	140		MG/L	12/15/93	EPA160_2
Total Phosphorus	6	0		% REC	01/10/94	EPA365_3

Referenced notes for these results:

1 Duplicate analysis performed in lieu of a matrix spike.

2 Matrix spike duplicate recovery outside control limits due to matrix interference of sulfate analysis by IC. LCS / LCSD results and all other method Quality Control within acceptance limits.

3 Duplicate analysis performed in lieu of a matrix spike.

4 Matrix spike duplicate outside control limits due to matrix interference. LCS and method Quality Control were acceptable.

5 Duplicate analysis performed in lieu of a matrix spike.

6 Matrix spike duplicate outside control limits due to matrix interference. LCS and method Quality Control were acceptable.

Company: IT CORPORATION
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409832-003-01 Work Order: B3-12-169

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1609-MSD**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/27/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	103	Trichloroethene	99
		Benzene	103
		Toluene	101
		Chlorobenzene	102

Surrogates	% Recovery	Limits
TOLUENE-D8	102	88 - 110
BROMOFLUOROBENZENE	102	86 - 115
1,2-DICHLOROETHANE-D4	94	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-169

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1609-MSD**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/16/93**
ANALYSIS DATE: **12/30/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
Phenol	86	Acenaphthene	87
2-Chlorophenol	94	4-Nitrophenol	84
1,4-Dichlorobenzene	83	2,4-Dinitrotoluene	77
N-Nitroso-di-n-propylamine	80	Pentachlorophenol	101
1,2,4-Trichlorobenzene	87	Pyrene	95
4-Chloro-3-methylphenol	85		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	85	35 - 114
2-Fluorobiphenyl	86	43 - 116
Terphenyl-D14	83	33 - 141
Phenol-D5	79	10 - 94
2-Fluorophenol	80	21 - 100
2,4,6-Tribromophenol	89	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-169

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1609-MSD**
SAMPLE DATE: **12/13/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000
UNITS: **% REC**

	Result
Aluminum	133
Barium	105
Cadmium	81
Calcium	97
Chromium	79
Copper	80
Iron	100
Magnesium	96
Manganese	77
Nickel	79
Potassium	102
Selenium	78
Silver	80
Sodium	92
Zinc	79

Data qualifier key:

E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
\+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Referenced notes for these results:

Matrix spike duplicate recovery outside control limits due to matrix interference of manganese, aluminum, chromium, nickle, selenium, and zinc analysis by ICPES. LCS / LCSD results and all method Quality Control within acceptance limits.

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		50U	50	MG/L as CaCO3	12/15/93	EPA310_1
TPH - IR		1.0U	1.0	MG/L	12/28/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		1.0U	1.0	MG/L	01/05/94	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/14/93	EPA7196
Nitrate and Nitrite		0.050U	0.050	MG/L	01/05/94	EPA353_2
Silica		0.20U	0.20	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		1.0U	1.0	MG/L	01/05/94	EPA300_0
Total Dissolved Solids		10U	10	MG/L	12/15/93	EPA160_1
Total Kjeldahl Nitrogen		0.25U	0.25	MG/L	01/10/94	EPA351_3
Total Organic Carbon		1.0U	1.0	MG/L	12/20/93	EPA415_1
Total Suspended Solids		10U	10	MG/L	12/15/93	EPA160_2
Total Phosphorus		0.10U	0.10	MG/L	01/10/94	EPA365_3

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-12-169

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/27/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	88 - 110
BROMOFLUOROBENZENE	102	86 - 115
1,2-DICHLOROETHANE-D4	96	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-169

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/16/93**
ANALYSIS DATE: **12/30/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
›is(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	1.2	J	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	1.4	J	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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(512) 892-6684

409832-003-01 Work Order: B3-12-169

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	85	35 - 114
2-Fluorobiphenyl	82	43 - 116
Terphenyl-D14	86	33 - 141
Phenol-D5	83	10 - 94
2-Fluorophenol	72	21 - 100
2,4,6-Tribromophenol	84	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-169

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.0
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	0.20	U	0.20
Barium	0.20	U	0.20
Cadmium	0.0050	U	0.0050
Calcium	5.0	U	5.0
Chromium	0.010	U	0.010
Copper	0.025	U	0.025
Iron	0.10	U	0.10
Magnesium	5.0	U	5.0
Manganese	0.015	U	0.015
Nickel	0.040	U	0.040
Potassium	5.0	U	5.0
Selenium	0.010	U	0.010
Silver	0.010	U	0.010
Sodium	5.0	U	5.0
Zinc	0.020	U	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **Alkalinity, Titrimetric** TEST CODE **310_1**

Alkalinity	EPA 310.1 - Chemical Analysis of Water and Wastewater. Titrimetric with sulfuric acid.

TEST NAME **TPH - IR** TEST CODE **418_1**

418_1	Method 418.1: Total Recoverable Petroleum Hydorcarbons, infrared spectrophotmetric method. Methods for the chemical analysis of water and wastes. USEPA.

TEST NAME **ICP Metals** TEST CODE **6010**

Metals by ICP	Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables	Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **Phenolics** TEST CODE **9066**

Phenolics	SW-846 Method 9066. Total Recoverable Phenolics. Colorimetric, Automated 4-AAP with Distillation. Equivalent to EPA Method 420.2.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-169

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace	Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **Chloride by Ion Chrom.** TEST CODE **CL_IC**

Chloride	USEPA 300.0 - The determination of inorganic anions in water by ion chromatography.

TEST NAME **Chemical Oxygen Demand** TEST CODE **COD**

COD	EPA 410.4 - Chemical Analysis of Water and Wastewater. Colorimetric analysis for Chemical Oxygen Demand.

TEST NAME **Chromium VI** TEST CODE **CR_VI**

Chromium VI	Method 7196, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Colorimetric analysis. Equivalent to Standard Methods 3500-Cr D.

TEST NAME **Mercury** TEST CODE **HG_AA**

Mercury	Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water. Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK4**

Method not available.

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-169

TEST NAME **Nitrate and Nitrite** TEST CODE **NO3NO2**

Nitrate + Nitrite	Method 353.2-Chemical Analysis of Water and Wastewater. Colorimetric Automated Cadmium Reduction method using Lachat autoanalyzer for NO3 and NO2 as N.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Silica** TEST CODE **SIO2**

Silica	Method 370.1-Chemical Analysis of Water and Wastewater. Colorimetric Analysis. This is equal to ASTM D859B.

TEST NAME **Sulfate by Ion Chrom.** TEST CODE **SO4_IC**

Sulfate	USEPA Method 300.0 - The Determination of Inorganic Anions in Water by Ion Chromatography.

TEST NAME **Total Dissolved Solids** TEST CODE **TDS**

Total Dissolved Solids	Method 160.1-Chemical Analysis of Water and Wastewater. Gravimetric analysis.

TEST NAME **Total Kjeldahl Nitrogen** TEST CODE **TKN_N**

Kjeldahl Nitrogen	Method 351.3-Chemical Analysis of Water and Wastewater. Digestion and colorimetric analysis.

TEST NAME **Total Organic Carbon** TEST CODE **TOC**

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-169

TEST NAME **Total Organic Carbon** TEST CODE **TOC**

Total Organic Carbon	Method 415.1-Chemical Analysis of Water and Wastewater. Chemical oxidation and nondispersive infrared analysis. Equivalent to SW-846 Method 9060. Sample prep is instrument manufacturer specific.

TEST NAME **Total Suspended Solids** TEST CODE **TSS**

Total Suspended Solids	Method 160.2-Chemical Analysis of Water and Wastewater. Filtration and gravimetric analysis of non-filterable residue.

TEST NAME **Total Phosphorus** TEST CODE **T_P**

Total Phosphorus	Method 365.3-Chemical Analysis of Water and Wastewater. Digestion and colorimetric analysis.

TEST NAME **ICPES Digestion - Water** TEST CODE **Z3005**

Water Digestion	Method 3005A, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Digestion procedure for the preparation of surface and ground water samples for analysis by flame atomic absorption spectroscopy and inductively coupled plasma spectroscopy. The procedure determines total recoverable or dissolved metals.

TEST NAME **GFAA Digestion - Water** TEST CODE **Z3020**

Water Digestion	Method 3020, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace.

R312167

IT INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 417458
Page 1 of 2

Project Name/No. [1] 409832 / Tinker 5001
Sample Team Members [2] MW / JS / KK
Profit Center No. [3] 3527
Project Manager [4] Jimmy Taylor
Purchase Order No. [6] 409832.03.01
Required Report Date [11] Normal

Samples Shipment Date [7] 12/13/93
Lab Destination [8] ITAS Austin
Lab Contact [9] Karmen Deane (405) 736-2260
Project Contact/Phone [12] Dan McGregor
Carrier/Waybill No. [13] 8460755811 FedEx

Bill to: [5] 409832.03.01 D.O. 5001
Report to: [10] Tim Jennings IT Austin

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
A1606	TRIP BLANK	12/02/93 1700	clear Glass	40ml	HCl	8240 VOC	Good, 4°C 12-14-93 JK	B32910104
A1607	well water / Fire Training Area	12/13/93 1500	clear Glass	(2) 40ml	HCl	8240 VOC		B32910104 1&2 2nd set 8240 VOA
			Amber Glass	2.5L	ice	8270 SVOC		3237001
				1L	H_2SO_4	418.1 TPH		
				500ml		9066 Phenols		
				250ml		410.4 COD 415.1 TOC		
				250ml	↓	351.3 TKN 353.2 Nitrate/Nitrite		
			Plastic	1L	ice	GW Parameters as per work plan		

Special Instructions: [23]

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☑ Archive (mos.)

Turnaround Time Required: [26]
Normal ☑ Rush ☐

QC Level: [27]
I. ☑ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation) Matthew J Wilson ITES Austin	Date: 12/13/93 Time: 1700	1. Received by [28] (Signature/Affiliation) JV	Date: 12-14-93 Time: 0842
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29]
MS/MSD on Sample # A1609

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

MCA 3/15/91

B312164

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 417458
Page 2 of 2

Project Name ~~4r~~ mw Tinker 5001 Project No. 409832 Samples Shipment Date 12/13/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
A1607	Well water / Fire Training Area	12/13/93 1500	Plastic	500ml	HNO_3	6010/7000 metals	12-14-93 Ac Good 4°C	
↓	↓	↓	↓	125ml	ice	7196 Cr^{6+}	↓	
A1608	well water / Fire Training Area	12/13/93 1535	Clear glass	(2) 40ml	HCl	8240 VOC		B3241020A 1 of 2 2nd not [illegible]
			Amber Glass	2.5 L	ice	8270 SVOC		3237062
				1 L	H_2SO_4	418.1 TPH		
				500ml		9066 Phenols		
				250ml		410.4 COD 415.1 TOC		
			↓	↓	↓	351.3 TKN 353.2 Nitrate/Nitrite		
			Plastic	500ml	HNO_3	6010/7000 metals		
				1 L	ice	GW parameters as per work plan		
↓	↓	↓	↓	125ml	ice	7196 Cr^{6+}		
A1609 (MS/MSD)	Well water / Fire Training Area	12/13/93 1600	Clear glass	(4) 40ml	HCl	8240 VOC		B3241020A
			Amber glass	(2) 2.5 L	~~[illegible]~~ mw ice	8270 SVOC		3237062
				(2) 1 L	H_2SO_4	418.1 TPH		
				(2) 500ml		9066 Phenols		
				(2) 250ml		410.4 COD 415.1 TOC		
			↓	↓	↓	351.3 TKN 353.2 Nitrate/Nitrite		
			Plastic	(2) 500ml	HNO_3	6010/7000 metals		
				(2) 1 L	ice	GW parameters as per work plan		
			↓	(2) 125ml	↓	7196 Cr^{6+}	↓	

White: To accompany samples Yellow: Field copy *See back of form for special instructions.

MCA 3 15 91

Auxiliary Data Summary 01/11/94

Work order : B312169 Sample ID : A1607

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02B	3520MS				12/27/93	
	418_1	B312169-07A	1218TPHIR1	12/18/93	12/28/93	1.0
02C	310_1	B312169-07A	1215310_11	12/15/93	12/15/93	1.0
	9066	B312169-07A	122890661	12/28/93	01/06/94	1.0
	CL_IC	B312169-07A	0105CL_IC1	01/05/94	01/05/94	10.0
	COD	B312169-07A	1228COD2B	12/28/93	12/28/93	1.0
	CR_VI	B312169-07A	1214CR_VI3	12/14/93	12/14/93	1.0
	NO3NO2	B312169-07A	0105NO3NO2	01/05/94	01/05/94	1.0
	SIO2	B312169-07A	1229SIO22	12/29/93	12/29/93	10.0
	SO4_IC	B312169-07A	105SO4_IC1	01/05/94	01/05/94	10.0
	TDS	B312169-07A	1215TDS1	12/15/93	12/15/93	1.0
	TKN_N	B312169-07A	0107TKN_N2	01/07/94	01/10/94	1.0
	TOC	B312169-07A	1220TOC3C	12/20/93	12/20/93	1.0
	TSS	B312169-07A	1215TSS1	12/15/93	12/15/93	2.0
	T_P	B312169-07A	0107T_P2	01/07/94	01/10/94	1.0
02D						
	AS_GF	B312169-07A	121830201	12/18/93	12/29/93	1.0
	HG_AA	B312169-07A	1228HGAA1	12/28/93	12/28/93	1.0
	PB_GF	B312169-07A	121830201	12/18/93	12/29/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312169 Sample ID : A1608

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03B						
	418_1	B312169-07A	1218TPHIR1	12/18/93	12/28/93	1.0
03C	310_1	B312169-07A	1215310_11	12/15/93	12/15/93	1.0
	9066	B312169-07A	122890661	12/28/93	01/06/94	1.0
	CL_IC	B312169-07A	0105CL_IC1	01/05/94	01/05/94	10.0
	COD	B312169-07A	1228COD2B	12/28/93	12/28/93	1.0
	CR_VI	B312169-07A	1214CR_VI3	12/14/93	12/14/93	1.0
	NO3NO2	B312169-07A	0105NO3NO2	01/05/94	01/05/94	1.0
	SIO2	B312169-07A	1229SIO22	12/29/93	12/29/93	10.0
	SO4_IC	B312169-07A	105SO4_IC1	01/05/94	01/05/94	10.0
	TDS	B312169-07A	1215TDS1	12/15/93	12/15/93	1.0
	TKN_N	B312169-07A	0107TKN_N2	01/07/94	01/10/94	1.0
	TOC	B312169-07A	1220TOC3C	12/20/93	12/20/93	1.0
	TSS	B312169-07A	1215TSS1	12/15/93	12/15/93	1.0
	T_P	B312169-07A	0107T_P2	01/07/94	01/10/94	1.0
03D						
	AS_GF	B312169-07A	121830201	12/18/93	12/29/93	1.0
	HG_AA	B312169-07A	1228HGAA1	12/28/93	12/28/93	1.0
	PB_GF	B312169-07A	121830201	12/18/93	12/29/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312169 Sample ID : A1609

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04B						
	418_1	B312169-07A	1218TPHIR1	12/18/93	12/28/93	1.0
04C	310_1	B312169-07A	1215310_11	12/15/93	12/15/93	1.0
	9066	B312169-07A	122890661	12/28/93	01/06/94	1.0
	CL_IC	B312169-07A	0105CL_IC1	01/05/94	01/05/94	10.0
	COD	B312169-07A	1228COD2B	12/28/93	12/28/93	1.0
	CR_VI	B312169-07A	1214CR_VI3	12/14/93	12/14/93	1.0
	NO3NO2	B312169-07A	0105NO3NO2	01/05/94	01/05/94	1.0
	SIO2	B312169-07A	1229SIO22	12/29/93	12/29/93	5.0
	SO4_IC	B312169-07A	105SO4_IC1	01/05/94	01/05/94	10.0
	TDS	B312169-07A	1215TDS1	12/15/93	12/15/93	1.0
	TKN_N	B312169-07A	0107TKN_N2	01/07/94	01/10/94	1.0
	TOC	B312169-07A	1220TOC3C	12/20/93	12/20/93	1.0
	TSS	B312169-07A	1215TSS1	12/15/93	12/15/93	1.0
	T_P	B312169-07A	0107T_P2	01/07/94	01/10/94	1.0
04D						
	AS_GF	B312169-07A	121830201	12/18/93	12/29/93	1.0
	HG_AA	B312169-07A	1228HGAA1	12/28/93	12/28/93	1.0
	PB_GF	B312169-07A	121830201	12/18/93	12/29/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312169 Sample ID : A1609-MS

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
05B						
	418_1	B312169-07A	1218TPHIR1	12/18/93	12/20/93	1.0
05C	310_1	B312169-07A	1215310_11	12/15/93	12/15/93	1.0
	9066	B312169-07A	122890661	12/28/93	01/06/94	1.0
	CL_IC	B312169-07A	0105CL_IC1	01/05/94	01/05/94	10.0
	COD	B312169-07A	1228COD2B	12/28/93	12/28/93	1.0
	CR_VI	B312169-07A	1214CR_VI3	12/14/93	12/14/93	1.0
	NO3NO2	B312169-07A	0105NO3NO2	01/05/94	01/05/94	1.0
	SIO2	B312169-07A	1229SIO22	12/29/93	12/29/93	5.0
	SO4_IC	B312169-07A	105SO4_IC1	01/05/94	01/05/94	10.0
	TDS	B312169-07A	1215TDS1	12/15/93	12/15/93	1.0
	TKN_N	B312169-07A	0107TKN_N2	01/07/94	01/10/94	1.0
	TOC	B312169-07A	1220TOC3C	12/20/93	12/20/93	1.0
	TSS	B312169-07A	1215TSS1	12/15/93	12/15/93	1.0
	T_P	B312169-07A	0107T_P2	01/07/94	01/10/94	1.0
05D						
	AS_GF	B312169-07A	121830201	12/18/93	12/29/93	1.0
	HG_AA	B312169-07A	1228HGAA1	12/28/93	12/28/93	1.0
	PB_GF	B312169-07A	121830201	12/18/93	12/29/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312169 Sample ID : A1609-MSD

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
06B						
	418_1	B312169-07A	1218TPHIR1	12/18/93	02/20/93	1.0
06C	310_1	B312169-07A	1215310_11	12/15/93	12/15/93	1.0
	9066	B312169-07A	122890661	12/28/93	01/06/94	1.0
	CL_IC	B312169-07A	0105CL_IC1	01/05/94	01/05/94	10.0
	COD	B312169-07A	1228COD2B	12/28/93	12/28/93	1.0
	CR_VI	B312169-07A	1214CR_VI3	12/14/93	12/14/93	1.0
	NO3NO2	B312169-07A	0105NO3NO2	01/05/94	01/05/94	1.0
	SIO2	B312169-07A	1229SIO22	12/29/93	12/29/93	5.0
	SO4_IC	B312169-07A	105SO4_IC1	01/05/94	01/05/94	10.0
	TDS	B312169-07A	1215TDS1	12/15/93	12/15/93	1.0
	TKN_N	B312169-07A	0107TKN_N2	01/07/94	01/10/94	1.0
	TOC	B312169-07A	1220TOC3C	12/20/93	12/20/93	1.0
	TSS	B312169-07A	1215TSS1	12/15/93	12/15/93	1.0
	T_P	B312169-07A	0107T_P2	01/07/94	01/10/94	1.0
06D						
	AS_GF	B312169-07A	121830201	12/18/93	12/29/93	1.0
	HG_AA	B312169-07A	1228HGAA1	12/28/93	12/28/93	1.0
	PB_GF	B312169-07A	121830201	12/18/93	12/29/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312169 Sample ID : LAB BLANK #1

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
07A	310_1	B312169-07A	1215310_11	12/15/93	12/15/93	1.0
	418_1	B312169-07A	1218TPHIR1	12/18/93	12/28/93	1.0
	9066	B312169-07A	122890661	12/28/93	01/06/94	1.0
	AS_GF	B312169-07A	12183020I	12/18/93	12/29/93	1.0
	CL_IC	B312169-07A	0105CL_IC1	01/05/94	01/05/94	10.0
	COD	B312169-07A	1228COD2B	12/28/93	12/28/93	1.0
	CR_VI	B312169-07A	1214CR_VI3	12/14/93	12/14/93	1.0
	HG_AA	B312169-07A	1228HGAA1	12/28/93	12/28/93	1.0
	NO3NO2	B312169-07A	0105NO3NO2	01/05/94	01/05/94	1.0
	PB_GF	B312169-07A	12183020I	12/18/93	12/29/93	1.0
	SIO2	B312169-07A	1229SIO22	12/29/93	12/29/93	1.0
	SO4_IC	B312169-07A	105SO4_IC1	01/05/94	01/05/94	10.0
	TDS	B312169-07A	1215TDS1	12/15/93	12/15/93	1.0
	TKN_N	B312169-07A	0107TKN_N2	01/07/94	01/10/94	1.0
	TOC	B312169-07A	1220TOC3C	12/20/93	12/20/93	1.0
	TSS	B312169-07A	1215TSS1	12/15/93	12/15/93	1.0
	T_P	B312169-07A	0107T_P2	01/07/94	01/10/94	1.0

TINKER_5001

WORK ORDER # B312169

OF WATER SAMPLES 7

OF SOIL SAMPLES _____

8240	✓✓	SIO2	✓✓
8270	✓✓	TDS	✓✓
IR	✓✓	TKN N	✓✓
AS	✓✓	TOC	✓✓
CRIV	✓✓	TSS	✓✓
HG	✓✓	T P	✓✓
ICP	✓✓		
PB	✓✓		
SO4_IC	✓✓		
310_1	✓✓		
9066	✓✓		
CL_IC	✓✓		
COD	✓✓		
NO3NO2	✓✓		

2-4

APPENDIX A

DEFINITIONS

ND(U) - Analyte was analyzed for, but not detected. The value given after the ND or "U" is the detection limit for that compound.

A - The compound denoted with an "A" indicates a suspected aldol condensation product.

B - Indicates the compound was also detected in the blank, but at levels less than 5X the detection limit. Values for this compound may be suspect.

J - Indicates the compound was detected in the sample, but at levels less than the detection limit, but above the MDL. Results should be reguarded as estimated.

D - Indicates that the compound was identified in an analysis at a secondary dilution factor.

N - Indicates presumptive evidence of a compound. This flag is used for tentatively identified compounds.

MS - Matrix Spike

MSD - Matrix Spike Duplicate

RPD - Relative Percent Difference

DL - Detection limit

UG/L - Micrograms/Liter

UG/KG - Micrograms/Kilogram

MG/KG - Milligrams/Kilogram

MG/L - Milligrams/Liter

%REC - Percent Recovery

QC Acceptance Limits

Method 8240	Water	Soil
Surrogate % Recoveries		
BFB	86-115	74-121
Dichloroethane	76-114	70-120
Toluene-d8	88-110	81-117
Matrix Spike Limits(%)		
1,1-Dichloroethene	61-145	59-172
Trichloroethene	71-120	62-137
Benzne	76-127	66-142
Toluene	76-125	59-139
Chlorobenzene	75-130	60-133

Method 8270	Water	Soil
Surrogate % Recoveries		
Nitrobenzene-d5	35 - 114	23 - 120
2-Fluorobiphenyl	43 - 116	30 - 115
Terphenyl-d14	33 - 141	18 - 137
Phenol-d5	10 - 94	24 - 113
2-Fluorophenol	21 - 100	25 - 121
2,4,6-Tribromophenol	10 - 123	19 - 122
Matrix Spike Limits(%)		
Phenol	14 - 99	15 - 101
Chlorophenol	19 - 107	20 - 113
1,4-Dichlorobenzene	18 - 101	17 - 102
N-Nitroso-di-propylamine	32 - 108	30 - 113
1,2,4-Trichlorobenzene	24 - 109	21 - 117
4-Chloro-3-methylphenol	31 - 111	34 - 108
Acenaphthene	33 - 110	30 - 110
4-Nitrophenol	1 - 141	d - 138
2,4-Dinitrotoluene	35 - 106	31 - 110
Pentachlorophenol	1 - 147	2 - 145
Pyrene	42 - 119	36 - 126

METALS CONTROL LIMITS

ICP: ± 20% for MS/MSD & Duplicate

GF: Control Charts for MS/MSD; ± 20% for Dup

ICV/CCV

GF ICV ± 20%
GF CCV ± 20%
ICP ICV/CCV ± 10%
HG AA ± 20%

CONTROL LIMITS
GRAPHITE FURNACE/MERCURY

ANALYTE	MATRIX	LIMITS	COMMENTS
Hg	water	21 - 170	Control Charts (B inst.)
Hg	soil	44 - 150	Control Charts (B)
As	water	59 - 150	D
As	soil	75 - 125	D
As	water	52 - 140	C
As	soil	35 - 142	C
Pb	water	48 - 153	D
Pb	soil	75 - 125	D
Pb	water	33 - 163	C
Pb	soil	75 - 125	C
Se	water	37 - 136	D
Se	soil	27 - 118	D
Se	water	20 - 147	C
Se	soil	2.6 - 139	C

KmB 12/28/93

QC BATCH ID FOR GFAA/CVAA - Test Code: 7470	
PREPREP METHOD:	-
PREP METHOD:	-
ANALYSIS METHOD:	7470
BATCH DATE:	12/28/93
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312098-01A
2	B312071-02B
3	-03B
4	-04B
5	B312202-01H
6	-02H
7	B312203-01H
8	-02H
9	B312169-02D
10	-03D
11	-04D
12	B312221-02A
13	-02A
14	-03A
15	-04A
16	-05A
17	-06A
18	-07A
19	-08A
20	KmB 12/28/93

Batch QC ID's

LCS ID:	ICV 12-28-93-1
LCSD ID:	CCV 12-28-93-1
MB ID:	ICB 12-28-93-1
MS ID:	B312169-05D MS } Spk of -04D
MSD ID:	B312169-06D MSD } Spk of -04D
REP ID:	B312169-04D DUP

Batch QC Results

MDL: 0.00020 PQL: 0.00020

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.00020	MG/L	KmB	12/28/93 1300
LCS % Rec	101	% Rec		
LCSD % Rec	106	% Rec		
LCS/LCSD RPD	4.83	% RPD		
MS % Rec	116	% Rec		
MSD % Rec	118	% Rec		
MS/MSD RPD	1.71	% RPD		
REP RPD	0.00	% RPD	↓	↓

Comments:

KmB 12/28/93

QC BATCH ID FOR GFAA/CVAA - Test Code: As-GF	
PREPREP METHOD:	
PREP METHOD:	E3020
ANALYSIS METHOD:	7060
BATCH DATE:	12/18/93
INSTRUMENT ID:	D
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312017-01C (1 KMB 12/28/93)
2	B312169-02D
3	-03D
4	-04D
5	
6	
7	
8	
9	
10	
11	KMB
12	12/28/93
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	LCS20121893-1
LCSD ID:	LCSD20121893-1
MB ID:	PB20121893-1
MS ID:	B312169-05D MS
MSD ID:	B312169-06D MSD
REP ID:	KMB 12/18/93

Batch QC Results

MDL: 0.65 PQL: 0.010

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.010		JG	12-29-93 10:57
LCS % Rec	~~104~~ 101	% Rec		
LCSD % Rec	105	% Rec		
LCS/LCSD RPD	3.88	% RPD		
MS % Rec	94	% Rec		
MSD % Rec	107	% Rec		
MS/MSD RPD	12.9	% RPD		
REP RPD	—	% RPD		

Comments: No Duplicate preped

QC BATCH ID FOR GFAA/CVAA - Test Code: Pb-GF
PREPREP METHOD:
PREP METHOD: E3020
ANALYSIS METHOD: 7421
BATCH DATE: 12/18/93
INSTRUMENT ID: C
SET (BATCH) #: 1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312017-01C (1 KMB 12/20/93)
2	B312169-02D
3	-03D
4	-04D
5	
6	
7	
8	
9	
10	
11	KMB
12	12/20/93
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	LCS20121893-1
LCSD ID:	LCSD20121893-1
MB ID:	PB20121893-1
MS ID:	B312169-05D MS
MSD ID:	B312169-06D MSD
REP ID:	KMB 12/18/93

Batch QC Results

MDL: 2.96 PQL: 0.0030

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.0030		JG	12-29-93 12:03
LCS % Rec	111	% Rec		
LCSD % Rec	120	% Rec		
LCS/LCSD RPD	7.8	% RPD		
MS % Rec	106	% Rec		
MSD % Rec	124	% Rec		
MS/MSD RPD	15.7	% RPD		
REP RPD	—	% RPD		

Comments: NO DUP SAMPLE PREPPED

ITAS_Austin Volatiles QA Spike Lot Summary LOT#: 1

Date/Time: 12/27/93 Intrument: C1

Operator: SOB Test/Matrix: 8240 / WATER

GC Column: CAP Operator:

Type	Lab Sample ID	Lab File ID	Performed (Y or N)
Sample	B312169/04		
MS	105		
MSD	106		
LCS			

This QA Spike Lot applies to the following Samples:

#	Client * Sample ID	Lab Sample ID	Lab File ID
01		B312169/01	
02		02	
03		03	
04		04	
05		B312175/01	
06		B312210/02	
07		/01	
08			
09			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Comments: TNTFL 500#

* - Field used only if necessary.

QC Batch ID

Prep Code/Date: ____/____

Test Code/Date: ____/____

Set #: _____ Inst. ID: _____

SOILS VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY AND BLANK SPIKE RECOVERY

Lab Name: ITAS - Austin Date Ran: 12/27/93 QC BATCH ID

Sample Names: >C1695 >C1696 >CBS27 Prep Code/Date:

CLIENT ID: 1422 1448 1209 Test Code/Date: 8240 12/27/93

Matrix Spike - SAM Sample No. B312169/05 Matrix: SOILS Set #: 0 Inst.ID: C1

(5.000 GM TO 5 ML) 1.0 X DIL

COMPOUND NAME	SPIKE ADDED (ug/Kg)	SAMPLE CONC (ug/Kg)	MS CONC (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.00	.00	54.29	109	59 - 172
Trichloroethene	50.00	.00	49.36	99	62 - 137
Benzene	50.00	.00	50.93	102	66 - 142
Toluene	50.00	.00	49.97	100	59 - 139
Chlorobenzene	50.00	.00	50.34	101	60 - 133

BLANK CONC (ug/Kg)	BS CONC (ug/Kg)	BS % REC #	QC LIMITS REC.
0	53.34	107	59 - 172
0	48.99	98	62 - 137
0	51.09	102	66 - 142
0	49.80	100	59 - 139
0	51.70	103	60 - 133

COMPOUND NAME	SPIKE ADDED (ug/Kg)	MSD CONC. (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.00	51.43	103	5	22	59 - 172
Trichloroethene	50.00	49.63	99	1	24	62 - 137
Benzene	50.00	51.66	103	1	21	66 - 142
Toluene	50.00	50.33	101	1	21	59 - 139
Chlorobenzene	50.00	50.79	102	1	21	60 - 133

Column to be used to flag recovery and RPD values with an asterisk.

* Values outside of QC limits.

RPD: 0 out of 5 outside limits.

Spike Recovery: 0 out of 10 outside limits.

SURROGATE RECOVERIES	>C1695	>C1696	>CBS27	LIMITS
Toluene - d8	104	102	102	81 - 117
Bromofluorobenzene	102	96	104	74 - 121
1,2-Dichloroethane - d4	96	94	98	70 - 120

1116
>CBS27
LAB BLANK
97
100
94
ALL ND

FORM III VOA-2

QC BATCH ID FOR ICPES	
PREPREP METHOD:	NA
PREP METHOD:	Z3005
ANALYSIS METHOD:	6010
BATCH DATE:	12-16-93
INSTRUMENT ID:	B
SET (BATCH) #:	3

Work Orders/Fractions Associated With Batch

Lab Sample ID's	
1)	B312169-02D
2)	-03D
3)	-04D
4)	
5)	
6)	
7)	
8)	
9)	
10)	
11)	
12)	
13)	
14)	
15)	
16)	
17)	
18)	
19)	
20)	

Batch QC Samples	
LCS ID:	LCS05 121693-1
LCSD ID:	LCSD05121693-1
MB ID:	PBW05121693-1
MS ID:	B312169-05D MS
MSD ID:	B312169-06D MSD
REP ID:	

ANALYTES REQUIRED FOR BATCH:

Ag	Al	As	B	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na
X	X	—	—	X	X	X	X	—	X	X	X	X	X	X	—	X

Ni	Pb	Sb	Se	Si	Sn	Ti	Tl	V	Zn
X	—	—	X	—	—	—	—	—	X

ITAS Austin QC Batch Summary for ICP

QC Batch ID	
›prep Method:	
Prep Method:	3005
Analysis Method:	6010
Batch Date:	12/16/93
Instrument ID:	B
Batch (Set) #:	3

Batch QC Information		
Matrix: WATER	Data Reported to PQL	
Units: MG/L		
		Corr. Fact.
Method Blk ID:	PB05121693-1	1
LCS ID:	LCS05121693-1	1
LCSD ID:	LCSD05121693-1	1
MS Sample ID:	B312169-05D	1
MSD Sample ID:	B312169-06D	1
Rep Sample ID:		0

	Replicate Sample Data				Blank / LCS Batch QC									
Analyte	Original Result for Replicate	Replicate Result	% RPD	Q	Method Blank Result	LCS true Value (mg/L	LCS Conc. Found	LCS % Rec.	Q	LCSD Conc. Found	LCSD % Rec.	Q	% RPD for LCS/LCSD Recoveries	Q
Ag					< 0.010	1	0.9617	96		0.97	97		0.95	
Al					< 0.20	10	10.2	102		10.22	102		0.20	
As					< 0.10	1	1.046	105		1.06	106		1.61	
B					< 0.20	1	0.9738	97		0.99	99		1.77	
Ba					< 0.20	1	0.9872	99		0.99	99		0.14	
Be					< 0.0050	1	0.9767	98		0.99	99		0.89	
Ca					< 5.0	20	20.79	104		21.00	105		1.01	
Cd					< 0.0050	1	0.9664	97		0.98	98		1.13	
Co					< 0.050	1	0.9388	94		0.95	95		1.25	
Cr					< 0.010	1	0.9905	99		1.00	100		0.52	
Cu					< 0.025	1	0.9395	94		0.94	94		0.37	
Fe					< 0.10	10	10.62	106		10.51	105		1.04	
K					< 5.0	20	19.47	97		20.03	100		2.84	
Mg					< 5.0	20	20.23	101		20.32	102		0.44	
Mn					< 0.015	1	0.9468	95		0.95	95		0.60	
Mo					< 0.10	1	0.9549	95		0.97	97		1.20	
Na					< 5.0	20	20.14	101		20.15	101		0.05	
Ni					< 0.040	1	0.946	95		0.95	95		0.87	
Pb					< 0.050	1	0.9492	95		0.96	96		0.90	
Sb					< 0.060	1	1.015	101		1.00	100		1.39	
Se					< 0.10	1	1.001	100		1.03	103		2.86	
Si					< 1.0	10	11.26	113		11.12	111		1.25	
Sn					< 0.10	1	0.9343	93		1.00	100		7.09	
Ti					< 0.10	1	0.9903	99		0.99	99		0.33	
Tl					< 0.20	1	1.055	106		1.03	103		2.20	
V					< 0.050	1	0.9608	96		0.97	97		0.76	
Zn					< 0.020	1	0.9605	96		0.96	96		0.12	

QC Data Reviewed By: [signature] Date/Time: 1/5/94 16:00

Comments:

alifiers: N - LCS % Recovery was outside method limits of 80-120 %.
R - % RPD for LCS/LCSD was outside control limit of 20 %.
* Replicate RPD was outside method control limit of 20 %

ITAS Austin QC Batch Summary for ICP

QC Batch ID	
reprep Method:	
Prep Method:	3005
Analysis Method:	6010
Batch Date:	12/16/93
Instrument ID:	B
Batch (Set) #:	3

Batch QC Information		
Matrix: WATER	Data Reported to PQL	
Units: MG/L		
		Corr. Factor
Method Blk ID:	PB05121693-1	1
LCS ID:	LCS05121693-1	1
LCSD ID:	LCSD05121693-1	1
MS Sample ID:	B312169-05D	1
MSD Sample ID:	B312169-06D	1
Rep Sample ID:		

	Spike Sample Data												
Analyte	Original Result for MS/MSD	MS Result	MS Spike Added	MS % Rec.	Q	MSD Result	MSD Spike Added	MSD % Rec.	Q	% RPD for MS/MSD Recoveries	Q	% RPD for MS/MSD Result As Replicates	Q
Ag	ND	0.8174	1.00	82		0.8028	1.00	80		1.80			
Al	2.76	14.72	10.00	120		16.06	10.00	133	N	10.61			
As													
B													
Ba	ND	1.058	1.00	106		1.054	1.00	105		0.38			
Be	ND	0.8283	1.00	83		0.8153	1.00	82		1.58			
Ca	35.69	55.03	20.00	97		55.13	20.00	97		0.52			
Cd	ND	0.8135	1.00	81		0.8103	1.00	81		0.39			
Co													
Cr	0.053	0.8592	1.00	81		0.8479	1.00	79	N	1.41			
Cu	ND	0.815	1.00	82		0.799	1.00	80		1.98			
Fe	4.338	12.81	10.00	85		14.37	10.00	100		16.86			
K	ND	20.48	20.00	102		20.35	20.00	102		0.64			
Mg	19.43	38.7	20.00	96		38.56	20.00	96		0.73			
Mn	0.067	0.8398	1.00	77	N	0.837	1.00	77	N	0.36			
Mo													
Na	21.96	41.1	20.00	96		40.34	20.00	92		4.05			
Ni	ND	0.8079	1.00	81		0.789	1.00	79	N	2.37			
Pb													
Sb													
Se	ND	0.8065	1.00	81		0.7792	1.00	78	N	3.44			
Si													
Sn													
Ti													
Tl													
V													
Zn	0.0276	0.8247	1.00	80		0.8159	1.00	79	N	1.11			

Comments:

Qualifiers (Q):

H - Sample concentration was greater than five times the spike level.
N - Spike recovery was outside method control limits of 80-120 %.
R - Percent RPD for MS/MSD recoveries was outside method control limit of 20 %.
D - Sample concentration was greater than five times the spike level.
The RPD was calculated between the MS and MSD results as replicates.

Test Code/Date: 5270 / 12-16-93
Set #: _____ Inst. ID: _____

Type	Lab Sample ID	Lab File ID	Performed (Y or N)
Blank	B312169-BLK	B312169LCS	
Sample			
MS	B312169-5B	4MS	
MSD	-6B	4MSD	
LCS	-LCS		

This QA Spike Lot applies to the following Samples:

#	Client Sample ID	Lab Sample ID	Lab File ID
		B312169-2B	12-16 Set1
1		-3B	
2		-4B	
3		-DUB	
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Comments: _____

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY AND BLANK SPIKE RECOVERY

Lab Name: ITAS - Austin QC BATCH ID
Sample Names: D1695 D1696 Prep Code/Date: 3520 |12/16/93
Date Ran: 12/30/93 12/30/93 Test Code/Date: 8270 |12/16/93
Time Ran: 23.09 23.37 Set #: * Inst.ID: D
Matrix Spike - SAM Sample No. B31216904 Matrix: WATER
(1000 ML TO 1 ML) 1.0 X DIL

COMPOUND NAME	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	MS CONC (ug/L)	MS % REC #	QC LIMITS REC.
PHENOL	100.00	.00	82.34	82	26 - 90
2-CHLOROPHENOL	100.00	.00	90.24	90	25 - 102
1,4-DICHLOROBENZENE	50.00	.00	40.27	81	28 - 104
N-NITROSODI-N-PROPYLAMINE	50.00	.00	39.36	79	41 - 126
1,2,4-TRICHLOROBENZENE	50.00	.00	42.99	86	38 - 107
4-CHLORO-3-METHYLPHENOL	100.00	.00	91.58	92	26 - 103
ACENAPHTHENE	50.00	.00	46.63	93	31 - 137
4-NITROPHENOL	100.00	.00	89.24	89	11 - 114
2,4-DINITROTOLUENE	50.00	.00	40.68	81	28 - 89
PENTACHLOROPHENOL	100.00	.00	113.03	113 *	17 - 109
PYRENE	50.00	.00	46.01	92	35 - 142

COMPOUND NAME	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
PHENOL	100.00	86.01	86	4	35	26 - 90
2-CHLOROPHENOL	100.00	94.26	94	4	50	25 - 102
1,4-DICHLOROBENZENE	50.00	41.55	83	3	27	28 - 104
N-NITROSODI-N-PROPYLAMINE	50.00	39.82	80	1	38	41 - 126
1,2,4-TRICHLOROBENZENE	50.00	43.47	87	1	23	38 - 107
4-CHLORO-3-METHYLPHENOL	100.00	85.48	85	7	33	26 - 103
ACENAPHTHENE	50.00	43.50	87	7	19	31 - 137
4-NITROPHENOL	100.00	84.19	84	6	50	11 - 114
2,4-DINITROTOLUENE	50.00	38.71	77	5	47	28 - 89
PENTACHLOROPHENOL	100.00	101.35	101	11	47	17 - 109
PYRENE	50.00	47.53	95	3	36	35 - 142

Column to be used to flag recovery and RPD values with an asterisk.
* Values outside of QC limits.
RPD: 0 out of 11 outside limits.
Spike Recovery: 1 out of 22 outside limits.

SURROGATE RECOVERIES	D1695	D1696	LIMITS
D5-NITROBENZENE	92	85	35 - 114
2-FLUOROBIPHENYL	90	86	43 - 116
D14-P-TERPHENYL	85	83	33 - 141
D5-PHENOL	79	79	10 - 94
2-FLUOROPHENOL	77	80	21 - 100
2,4,6-TRIBROMOPHENOL	98	89	10 - 123

WATER SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: ITAS - Austin CLIENT ID: QC BATCH ID

Sample Names:	DBS69	DBL69	Prep Code/Date:	3520	12/16/93
Date Ran:	12/30/93	12/30/93	Test Code/Date:	8270	12/16/93
Time Ran:	9.33	9.05	Set #:1	Inst.ID: 0	

Matrix Spike - SAM Sample No. B312169/BS Matrix: WATER

(1000.00 ML TO 1.00 ML) 1.0 X DIL

COMPOUND NAME	SPIKE ADDED (ug/L)	BLANK CONC (ug/L)	BS CONC (ug/L)	BS % REC #	QC LIMITS REC.	CLP LIMIT SPIKE	CLP LIMIT %RPD
PHENOL	100.00	.00	76.18	76	14 - 99	12 - 110	42
2-CHLOROPHENOL	100.00	.00	92.01	92	19 - 107	27 - 123	40
1,4-DICHLOROBENZENE	50.00	.00	38.57	77	18 - 101	36 - 97	28
N-NITROSODI-N-PROPYLAMIN	50.00	.00	39.73	79	32 - 108	41 - 116	38
1,2,4-TRICHLOROBENZENE	50.00	.00	46.12	92	24 - 109	39 - 98	28
4-CHLORO-3-METHYLPHENOL	100.00	.00	96.64	97	31 - 111	23 - 97	42
ACENAPHTHENE	50.00	.00	49.34	99	33 - 110	46 - 118	31
4-NITROPHENOL	100.00	.00	75.98	76	1 - 141	10 - 80	50
2,4-DINITROTOLUENE	50.00	.00	40.70	81	35 - 106	24 - 96	38
PENTACHLOROPHENOL	100.00	.00	102.49	102	1 - 147	9 - 103	50
PYRENE	50.00	.00	52.15	104	42 - 119	26 - 127	51

Column to be used to flag recovery and RPD values with an asterisk.

* Values outside of QC limits.

Spike Recovery: 0 out of 11 outside limits.

SURROGATE RECOVERIES	DBS69	DBL69	LIMITS
D5-NITROBENZENE	88	85	35 - 114
2-FLUOROBIPHENYL	91	83	43 - 116
D14-P-TERPHENYL	88	86	33 - 141
D5-PHENOL	75	83	10 - 94
2-FLUOROPHENOL	73	72	21 - 100
2,4,6-TRIBROMOPHENOL	86	84	10 - 123

12127

D312169

QC Batch ID

ITAS - AUSTIN EXTRACTABLES QA LOT SUMMARY:

Prep Code/Date: T-W-4B 12/14/93
Test Code/Date: _____/_____
Set #: _____ Inst. ID: _____

Type	Lab Sample ID	Result	Percent Recovery	QC limits
Blank	B312154-B1	ND	<	< Reporting limit
Blank spike	BS	5.7	102	70 to 130%
MS	BS	11	95	70 to 130%
MSD	08A	12	100	70 to 130%

This QA Spike Lot applies to the following Samples:

#	Client	Sam # + Fraction	Date of Prep
1	Tinker	B312154-06B	12/16/93
2		B312154-02B	12/18/93
3		03B	
4		04B	
5		05B	
6		09B	
7		10B	
8		B312169-02B	
9		03B	
10		04B	
11		05B	
12		06B	
13			
14			
15			
16			
17			
18			
19			
20			

Comments: _____

QC BATCH ID FOR WET CHEM - Test Code: CR_VI

PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	CR_VI
BATCH DATE:	12/14/93 12:00
INSTRUMENT ID:	A
SET (BATCH) #:	3

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B31D169-02C
2	03C
3	04C
4	
5	
6	
7	
8	
9	12/15
10	~~SET~~
11	12/14/93
12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	LCS 121493-3
LCSD ID:	LCS 121493-3
MB ID:	MB 121493-3
MS ID:	B31D169-05C
MSD ID:	B31D169-06C
REP ID:	B31D169-02C

Batch QC Results

MDL: _____ PQL: 0.010 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0	mg/L	~~SET~~	12/14/93 12:00
LCS % Rec	96.0	% Rec		
LCSD % Rec	102	% Rec		
LCS/LCSD RPD	6.06	% RPD		
MS % Rec	102	% Rec		
MSD % Rec	104	% Rec		
MS/MSD RPD	1.94	% RPD		
REP RPD	0	% RPD	/	

Comments:

QC BATCH ID FOR WET CHEM - Test Code: NO3 NO2 / NO3-PR.	
PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	353.2
BATCH DATE:	1-5-94
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312263-01
2	02C
3	B312169-02C
4	03C
5	04C
6	~~B312176-02C~~
7	~~03C~~
8	~~04C~~
9	B312198-01C
10	02C
11	B312247-01B
12	B312202-01M
13	02M
14	B312203-01M
15	02M
16	B312269-01M
17	02M
18	B312270-01M
19	B312327-05H
20	

Batch QC ID's

LCS ID:	LCS 010594-1
LCSD ID:	LCSD 010594-1
MB ID:	MB 010594-1
MS ID:	B312169-05C
MSD ID:	B312169-06C
REP ID:	B312169-03C

Batch QC Results

MDL: _____ PQL: 0.050

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	ND	mg/L	DSB	1/5/94 10:35
LCS % Rec	100	% Rec		
LCSD % Rec	98	% Rec		
LCS/LCSD RPD	2.0	% RPD		
MS % Rec	110	% Rec		
MSD % Rec	99	% Rec		
MS/MSD RPD	11	% RPD		
REP RPD	3.6	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: SO4-IC
PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: SO4-IC
BATCH DATE: 1/5/94
INSTRUMENT ID: A
SET (BATCH) #: 1B

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312169-02C
2	-03C
3	-04C
4	
5	
6	
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19	
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Batch QC ID's

LCS ID:	010594-1
LCSD ID:	010594-2
MB ID:	010594-1
MS ID:	B312169-05C
MSD ID:	B312169-06C
REP ID:	B312169-04C

Batch QC Results

MDL: _____ PQL: 1.0 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0.0	mg/L	RBS	1/5/94 7:39
LCS % Rec	107	% Rec		
LCSD % Rec	104	% Rec		
LCS/LCSD RPD	2.84	% RPD		
MS % Rec	78.5	% Rec		
MSD % Rec	68.5	% Rec		
MS/MSD RPD	13.6	% RPD		
REP RPD	12.1	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: Cl-IC
PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: Cl-IC
BATCH DATE: 11/5/94
INSTRUMENT ID: A
SET (BATCH) #: 1B

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1 B312169-03C
2 -03C
3 -04C
4
5
6
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11
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19
20

Batch QC ID's

LCS ID: 010594-1
LCSD ID: 010594-2
MB ID: 010594-1
MS ID: B312169-05C
MSD ID: B312169-06C
REP ID: B312169-04C

Batch QC Results

MDL: _____ PQL: 1.0 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0.0	mg/L	RBS	11/05/94 7:39
LCS % Rec	109	% Rec	↓	↓
LCSD % Rec	104	% Rec		
LCS/LCSD RPD	4.69	% RPD		
MS % Rec	~~108~~ 90.0	% Rec		
MSD % Rec	~~90.0~~ 85	% Rec		
MS/MSD RPD	~~90.5~~ 5.54	% RPD		
REP RPD	5.61	% RPD	↓	↓

Comments:

QC BATCH ID FOR WET CHEM - Test Code: 9066	
PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	9066
BATCH DATE:	12-28-94
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312169-02C
2	03C
3	04C
4	
5	
6	
7	
8	
9	
10	
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16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	LCS 122793-2
LCSD ID:	LCSD 122893-1
MB ID:	MB 122893-1
MS ID:	B312169-05C
MSD ID:	B312169-06C
REP ID:	B312169-04C

Batch QC Results

MDL: _____ PQL: 0.010

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	ND	mg/L	anon	1-6-94 17:02
LCS % Rec	86	% Rec		
LCSD % Rec	84	% Rec		
LCS/LCSD RPD	2.4	% RPD		
MS % Rec	78	% Rec		
MSD % Rec	81	% Rec		
MS/MSD RPD	3.8	% RPD		
REP RPD	0	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: T-P
PREPREP METHOD: —
PREP METHOD: —
ANALYSIS METHOD: 365.4
BATCH DATE: 1-7-94
INSTRUMENT ID: A
SET (BATCH) #: 2

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312169-02C
2	-03C
3	-04C
4	
5	
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Batch QC ID's

LCS ID: LCS 010794-1
LCSD ID: —
MB ID: PBW 010794-1
MS ID: B312169-05C MS of 04C
MSD ID: -06C MSD of 04C
REP ID: —

Batch QC Results

MDL: — PQL: 0.10

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.10	mg/L	DSB	1/7/94 10:40
LCS % Rec	104	% Rec		
LCSD % Rec	—	% Rec		
LCS/LCSD RPD	—	% RPD		
MS % Rec	Ø	% Rec		
MSD % Rec	Ø	% Rec		
MS/MSD RPD	Ø	% RPD		
REP RPD	—	% RPD		

Comments: MS/MSD CAME OUT OF A SEPARATE BOTTLE: RERAN SAMPLES AT END OF RUN W/ SAME RESULTS. NCM FILED.

QC BATCH ID FOR WET CHEM - Test Code: TKN-N	
PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	351.2
BATCH DATE:	01-07-94
INSTRUMENT ID:	A
SET (BATCH) #:	2

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312169-02C
2	03C
3	04C
4	
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19	
20	

Batch QC ID's

LCS ID:	ICV 010794-1
LCSD ID:	LCS 010794-1
MB ID:	MB 010794-1
MS ID:	B312169-05C
MSD ID:	B312169-06C
REP ID:	

Batch QC Results

MDL: _____ PQL: 0.25

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	ND	mg/L	DSB	1/10/94 08:44
LCS % Rec	85.0	% Rec		
LCSD % Rec	93.2	% Rec		
LCS/LCSD RPD	—	% RPD		
MS % Rec	81.7	% Rec		
MSD % Rec	67.9	% Rec		
MS/MSD RPD	18.4	% RPD		
REP RPD		% RPD		

Comments: NC written for MSD % RCVRY

QC BATCH ID FOR WET CHEM - Test Code: ALK-I	
PREPREP METHOD:	NA
PREP METHOD:	N.A
ANALYSIS METHOD:	ALK-10
BATCH DATE:	12-15-93
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's	Batch QC ID's
1 B312169 02C→06C	LCS ID: 121593-1
2 B312151 02C→09C	LCSD ID: 121593-2
3 ~~B312145~~	MB ID: NA
4 ~~B312147 01C 20A~~	MS ID: NA
5 B312154 02C→10C	MSD ID: NA
6 B312147-01C, 20A	REP ID: B312169, B312151, B312154, ~~B312147~~
7	
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17	
18	
19	
20	

Batch QC Results MDL: _____ PQL: 10

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0		JAM	12-15-93
LCS % Rec	100	% Rec		
LCSD % Rec	100	% Rec		
LCS/LCSD RPD	NA	% RPD		
MS % Rec		% Rec		
MSD % Rec		% Rec		
MS/MSD RPD	↓	% RPD		
REP RPD	1.24	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: SiO2
PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: SiO2
BATCH DATE: 12/24/53
INSTRUMENT ID: A
SET (BATCH) #: 1C

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312169-02C
2	-03C
3	-04C
4	B312263-01A
5	-02A
6	
7	
8	
9	
10	
11	
12	
13	
14	SAF
15	12/29
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID: LCS/22993-1
LCSD ID: LCS/22993-1
MB ID: MB/22993-1
MS ID: B312169-05C
MSD ID: B312169-06C
REP ID: LCSD/22993-1

Batch QC Results

MDL: _____ PQL: 0.20 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0	mg/L	SAF	12/25
LCS % Rec	90.0	% Rec		
LCSD % Rec	96.0	% Rec		
LCS/LCSD RPD	6.45	% RPD		
MS % Rec	94.4	% Rec		
MSD % Rec	108	% Rec		
MS/MSD RPD	13.4	% RPD		
REP RPD	6.45	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TOC

PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: TOC
BATCH DATE: 12/20/93
INSTRUMENT ID: A
SET (BATCH) #: 3C

Work Orders/Fractions Associated With Batch

Lab Sample ID's	
1	B312169-02C
2	03C
3	04C
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID: CS122093-3
LCSD ID: LCSD122093-3
MB ID: MB122093-3
MS ID: B312169-05C
MSD ID: B312169-06C
REP ID: ~~LCSD12764~~ SAT LCSD122093-3

Batch QC Results MDL: ____ PQL: 1.0 mg/l

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0	mg/l	SAT	12/20 16:00
LCS % Rec	108	% Rec		
LCSD % Rec	108	% Rec		
LCS/LCSD RPD	0	% RPD		
MS % Rec	114	% Rec		
MSD % Rec	114	% Rec		
MS/MSD RPD	0	% RPD		
REP RPD	6	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TDS

PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: TDS
BATCH DATE: 12/15/93
INSTRUMENT ID: A
SET (BATCH) #: 1

Work Orders/Fractions Associated With Batch

Lab Sample ID's	Batch QC ID's
1 B312169-02C	LCS ID: LCS 121593-1
2 03C	LCSD ID: LCSD 121593-1
3 04C	MB ID: NA
4 (DUP OF 04C) 05C	MS ID:
5 (DUP OF 04C) 06C	MSD ID:
6	REP ID: B312169-05C -06C
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC Results MDL: _____ PQL: _____

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	NA	mg/L	JAM	12/15 10:00
LCS % Rec	95.3	% Rec		
LCSD % Rec	90.6	% Rec		
LCS/LCSD RPD	5.06	% RPD		
MS % Rec	NA	% Rec		
MSD % Rec		% Rec		
MS/MSD RPD		% RPD		
REP RPD	1.92/D	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: COD
PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: COD
BATCH DATE: 12/28/93
INSTRUMENT ID: A
SET (BATCH) #: 2

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1 B312169-02C
2 -03C
3 -04C
4
5
6
7
8
9
10
11
12
13
14
15 SAT
16 12/28
17
18
19
20

Batch QC ID's

LCS ID: LCS122893-2
LCSD ID: LCSD122893-2
MB ID: MB122893-2
MS ID: B312169-05C
MSD ID: B312169-06C
REP ID: LCSD122893-2

Batch QC Results

MDL: _____ PQL: 25 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	D	mg/L	SAT	12/28 16:00
LCS % Rec	106	% Rec		
LCSD % Rec	96.4	% Rec		
LCS/LCSD RPD	9.49	% RPD		
MS % Rec	106	% Rec		
MSD % Rec	110	% Rec		
MS/MSD RPD	3.70	% RPD		
REP RPD	9.49	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TSS

PREPREP METHOD:

PREP METHOD:

ANALYSIS METHOD: TSS

BATCH DATE: 12/15/93

INSTRUMENT ID: A

SET (BATCH) #: 1

Work Orders/Fractions Associated With Batch

Lab Sample ID's	
1	B312169-02C
2	02C
3	04C
4 (DUP)	05C
5 (DUP)	06C
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID: LCS121593-1

LCSD ID: LCSD121593-1

MB ID: NA

MS ID: 1

MSD ID:

REP ID: B312169-05C 06C

Batch QC Results

MDL: _____ PQL: _____

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	NA	MG/L	JAM	12/15 10:00
LCS % Rec	95	% Rec		
LCSD % Rec	100	% Rec		
LCS/LCSD RPD	5.1	% RPD		
MS % Rec	NA	% Rec		
MSD % Rec	1	% Rec		
MS/MSD RPD		% RPD		
REP RPD	6.4/21	% RPD	V	

Comments:

TPJ

1/11/94

Routed to: CF, TL, KT

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 01/10/94

Work Order: B3-12-151

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O. 5001 409832-003-01
Date Received: 12/11/93
Number of Samples: 11
Sample Type: WATER

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1599	B3-12-151-01
A1600	B3-12-151-02
A1601	B3-12-151-03
A1602	B3-12-151-04
A1603	B3-12-151-05
A1604	B3-12-151-06
A1604-MS	B3-12-151-07
A1604-MSD	B3-12-151-08
A1605	B3-12-151-09
LAB BLANK #1	B3-12-151-10
LAB BLANK #2	B3-12-151-11

Reviewed and Approved:

Jon Bartell
Laboratory Director

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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(512) 892-6684

409832-003-01 Work Order: B3-12-151

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1599**
SAMPLE DATE: **12/02/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	7.4	J	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	95	88 - 110
BROMOFLUOROBENZENE	98	86 - 114
1,2-DICHLOROETHANE-D4	102	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-151

SAMPLE ID: **A1600**
SAMPLE DATE: **12/10/93 13:00:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		470	10	MG/L as CaCO3	12/17/93	EPA310_1
TPH - IR		1.0U	1.0	MG/L	12/27/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		39	5.0	MG/L	12/16/93	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/11/93	EPA7196
Nitrate and Nitrite		3.8	0.50	MG/L	12/14/93	EPA353_2
Silica		8.9	2.0	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		36	5.0	MG/L	12/16/93	EPA300_0
Total Dissolved Solids		510	10	MG/L	12/14/93	EPA160_1
Total Kjeldahl Nitrogen		0.25U	0.25	MG/L	01/07/94	EPA351_3
Total Organic Carbon		2.2	1.0	MG/L	12/20/93	EPA415_1
Total Suspended Solids		750	10	MG/L	12/14/93	EPA160_2
Total Phosphorus		0.10U	0.10	MG/L	01/07/94	EPA365_3

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-151

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1600**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	33		5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
,1-Dichloroethane	5	U	5	Bromoform	5	U	5
rans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	45		5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	1.2	J	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	95	88 - 110
BROMOFLUOROBENZENE	97	86 - 114
1,2-DICHLOROETHANE-D4	101	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1600**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/15/93**
ANALYSIS DATE: **12/22/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
is(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1600**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	94	35 - 114
2-Fluorobiphenyl	78	43 - 116
Terphenyl-D14	76	33 - 141
Phenol-D5	93	10 - 94
2-Fluorophenol	80	21 - 100
2,4,6-Tribromophenol	74	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001 409832-003-01 Work Order: B3-12-151

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1600**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	5.9		0.20
Barium	0.35		0.20
Cadmium	0.0050	UN	0.0050
Calcium	61	N	5.0
Chromium	0.014	N	0.010
Copper	0.025	UN	0.025
Iron	13		0.10
Magnesium	45		5.0
Manganese	0.23	N	0.015
Nickel	0.040	UN	0.040
Potassium	5.0	U	5.0
Selenium	0.10	N	0.10
Silver	0.010	UN	0.010
Sodium	59		5.0
Zinc	0.022	N	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

SAMPLE ID: **A1601**
SAMPLE DATE: **12/10/93 13:55:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		520	10	MG/L as CaCO3	12/15/93	EPA310_1
TPH - IR		1.0U	1.0	MG/L	12/27/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		87	10	MG/L	12/18/93	EPA300_0
Chemical Oxygen Demand		35	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/11/93	EPA7196
Nitrate and Nitrite		2.9	0.50	MG/L	12/14/93	EPA353_2
Silica		7.3	2.0	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		110	5.0	MG/L	12/16/93	EPA300_0
Total Dissolved Solids		630	10	MG/L	12/14/93	EPA160_1
Total Kjeldahl Nitrogen		0.38	0.25	MG/L	01/07/94	EPA351_3
Total Organic Carbon		3.0	1.0	MG/L	12/20/93	EPA415_1
Total Suspended Solids		190	10	MG/L	12/14/93	EPA160_2
Total Phosphorus		0.15	0.10	MG/L	01/07/94	EPA365_3

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-151

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1601**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	7.0		5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	8300	D	500
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	9.0		5
Acetone	100	U	100	Benzene	5.4		5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5.7		5	2-Chloroethylvinyl ether	10	U	10
,1-Dichloroethane	5	U	5	Bromoform	5	U	5
crans-1,2-Dichloroethene	130		5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	1600	D	500	4-Methyl-2-pentanone	50	U	50
Chloroform	4.8	J	5	Tetrachloroethene	4.4	J	5
1,2-Dichloroethane	500		25	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	1.3	J	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	220		25
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	97	88 - 110
BROMOFLUOROBENZENE	97	86 - 114
1,2-DICHLOROETHANE-D4	95	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1601**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/15/93**
ANALYSIS DATE: **12/22/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	53		10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	290	D	200	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	1900	D	200	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
is(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1601**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	103	35 - 114
2-Fluorobiphenyl	82	43 - 116
Terphenyl-D14	82	33 - 141
Phenol-D5	97*	10 - 94
2-Fluorophenol	39	21 - 100
2,4,6-Tribromophenol	38	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Referenced notes for these results:

High recovery of phenol-d5 may have been due to internal standard suppression. Analysis at dilution gave recoveries of 85% and 75%.

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1601**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	8.2		0.20
Barium	0.21		0.20
Cadmium	0.0050	UN	0.0050
Calcium	48	N	5.0
Chromium	0.040	N	0.010
Copper	0.043	N	0.025
Iron	11		0.10
Magnesium	43		5.0
Manganese	0.14	N	0.015
Nickel	0.040	UN	0.040
Potassium	5.0	U	5.0
Selenium	0.10	UN	0.10
Silver	0.010	UN	0.010
Sodium	110		5.0
Zinc	0.024	N	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

SAMPLE ID: **A1602**
SAMPLE DATE: **12/10/93 13:55:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		330	10	MG/L as CaCO3	12/15/93	EPA310_1
TPH - IR		1.0U	1.0	MG/L	12/27/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		89	10	MG/L	12/18/93	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/11/93	EPA7196
Nitrate and Nitrite		2.7	0.50	MG/L	12/14/93	EPA353_2
Silica		6.9	2.0	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		230	10	MG/L	12/16/93	EPA300_0
Total Dissolved Solids		660	10	MG/L	12/14/93	EPA160_1
Total Kjeldahl Nitrogen		0.25U	0.25	MG/L	01/07/94	EPA351_3
Total Organic Carbon		3.0	1.0	MG/L	12/20/93	EPA415_1
Total Suspended Solids		250	10	MG/L	12/14/93	EPA160_2
Total Phosphorus		0.10U	0.10	MG/L	01/07/94	EPA365_3

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1602**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	7.3		5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	8900	D	500
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	7.3		5
Acetone	100	U	100	Benzene	5.7		5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	6.0		5	2-Chloroethylvinyl ether	10	U	10
,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	140		5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	1700	D	500	4-Methyl-2-pentanone	50	U	50
Chloroform	4.8	J	5	Tetrachloroethene	4.7	J	5
1,2-Dichloroethane	550		25	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	1.5	J	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	240		25
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	100	88 - 110
BROMOFLUOROBENZENE	100	86 - 114
1,2-DICHLOROETHANE-D4	95	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1602**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/15/93**
ANALYSIS DATE: **12/22/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	46		10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	250	D	200	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	1700	D	200	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
is(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1602**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	100	35 - 114
2-Fluorobiphenyl	80	43 - 116
Terphenyl-D14	70	33 - 141
Phenol-D5	106*	10 - 94
2-Fluorophenol	86	21 - 100
2,4,6-Tribromophenol	76	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Referenced notes for these results:

High recovery of phenol-d5 may have been due to internal standard suppression. Analysis at dilution gave recoveries of 104% and 92%.

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001 409832-003-01 Work Order: B3-12-151

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1602**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	5.1		0.20
Barium	0.19		0.20
Cadmium	0.0050	UN	0.0050
Calcium	58	N	5.0
Chromium	0.029	N	0.010
Copper	0.049	N	0.025
Iron	5.5		0.10
Magnesium	52		5.0
Manganese	0.10	N	0.015
Nickel	0.040	UN	0.040
Potassium	5.0	U	5.0
Selenium	0.10	UN	0.10
Silver	0.010	UN	0.010
Sodium	130		5.0
Zinc	0.021	N	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

SAMPLE ID: **A1603**
SAMPLE DATE: **12/10/93 14:30:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		380	10	MG/L as CaCO3	12/15/93	EPA310_1
TPH - IR		1.0U	1.0	MG/L	12/27/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		34	4.0	MG/L	12/16/93	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/11/93	EPA7196
Nitrate and Nitrite		3.8	0.50	MG/L	12/14/93	EPA353_2
Silica		4.3	2.0	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		24	4.0	MG/L	12/16/93	EPA300_0
Total Dissolved Solids		450	10	MG/L	12/14/93	EPA160_1
Total Kjeldahl Nitrogen		0.25U	0.25	MG/L	01/10/94	EPA351_3
Total Organic Carbon		1.2	1.0	MG/L	12/20/93	EPA415_1
Total Suspended Solids		160	10	MG/L	12/14/93	EPA160_2
Total Phosphorus		0.10U	0.10	MG/L	01/10/94	EPA365_3

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1603**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	96		5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
,1-Dichloroethane	5	U	5	Bromoform	5	U	5
rans-1,2-Dichloroethene	3.5	J	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	39		5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	2.0	J	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	1.2	J	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	96	88 - 110
BROMOFLUOROBENZENE	97	86 - 114
1,2-DICHLOROETHANE-D4	101	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1603**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/15/93**
ANALYSIS DATE: **12/23/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1603**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	93	35 - 114
2-Fluorobiphenyl	77	43 - 116
Terphenyl-D14	84	33 - 141
Phenol-D5	89	10 - 94
2-Fluorophenol	77	21 - 100
2,4,6-Tribromophenol	76	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1603**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	1.4		0.20
Barium	0.23		0.20
Cadmium	0.0050	UN	0.0050
Calcium	59	N	5.0
Chromium	0.010	UN	0.010
Copper	0.025	UN	0.025
Iron	2.0		0.10
Magnesium	33		5.0
Manganese	0.048	N	0.015
Nickel	0.040	UN	0.040
Potassium	5.0	U	5.0
Selenium	0.10	UN	0.10
Silver	0.010	UN	0.010
Sodium	46		5.0
Zinc	0.020	UN	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-12-151

SAMPLE ID: **A1604**
SAMPLE DATE: **12/10/93 14:45:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		500	10	MG/L as CaCO3	12/15/93	EPA310_1
TPH - IR		1.0U	1.0	MG/L	12/27/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		57	10	MG/L	12/18/93	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/11/93	EPA7196
Nitrate and Nitrite		2.6	0.50	MG/L	12/14/93	EPA353_2
Silica		11	5.0	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		37	5.0	MG/L	12/16/93	EPA300_0
Total Dissolved Solids		650	10	MG/L	12/14/93	EPA160_1
Total Kjeldahl Nitrogen		0.25U	0.25	MG/L	01/10/94	EPA351_3
Total Organic Carbon		1.6	1.0	MG/L	12/20/93	EPA415_1
Total Suspended Solids		42	10	MG/L	12/14/93	EPA160_2
Total Phosphorus		0.10U	0.10	MG/L	01/10/94	EPA365_3

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-151

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1604**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	99		5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	24		5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	95	88 - 110
BROMOFLUOROBENZENE	96	86 - 114
1,2-DICHLOROETHANE-D4	98	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1604**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/15/93**
ANALYSIS DATE: **12/23/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
is(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1604**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	97	35 - 114
2-Fluorobiphenyl	78	43 - 116
Terphenyl-D14	89	33 - 141
Phenol-D5	90	10 - 94
2-Fluorophenol	77	21 - 100
2,4,6-Tribromophenol	68	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1604**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	0.95		0.20
Barium	0.24		0.20
Cadmium	0.0050	UN	0.0050
Calcium	80	N	5.0
Chromium	0.010	UN	0.010
Copper	0.025	UN	0.025
Iron	1.1		0.10
Magnesium	52		5.0
Manganese	0.065	N	0.015
Nickel	0.040	UN	0.040
Potassium	1.7		5.0
Selenium	0.10	UN	0.10
Silver	0.010	UN	0.010
Sodium	43		5.0
Zinc	0.020	UN	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

SAMPLE ID: **A1604-MS**
SAMPLE DATE: **12/10/93 14:45:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric	1	510	10	MG/L AS CACO3	12/15/93	EPA310_1
TPH - IR		90		% REC	12/27/93	EPA418_1
Phenolics		90		% REC	01/06/94	EPA9066
Chloride by Ion Chrom.		99		% REC	12/18/93	EPA300_0
Chemical Oxygen Demand		106		% REC	12/28/93	EPA410_4
Chromium VI		98		% REC	12/11/93	EPA7196
Nitrate and Nitrite		96		% REC	12/14/93	EPA353_2
Silica		93		% REC	12/29/93	370_1
Sulfate by Ion Chrom.		86		% REC	12/16/93	EPA300_0
Total Dissolved Solids	2	620	10	MG/L	12/14/93	EPA160_1
Total Kjeldahl Nitrogen		92		% REC	01/10/94	EPA351_3
Total Organic Carbon		114		% REC	12/20/93	EPA415_1
Total Suspended Solids	3	38	10	MG/L	12/14/93	EPA160_2
Total Phosphorus		99		% REC	01/10/94	EPA365_3

Referenced notes for these results:

1 Duplicate analysis performed in lieu of a matrix spike.

2 Duplicate analysis performed in lieu of a matrix spike.

3 Duplicate analysis performed in lieu of a matrix spike.

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001 409832-003-01 Work Order: B3-12-151

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1604-MS**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	100	Trichloroethene	85
		Benzene	97
		Toluene	93
		Chlorobenzene	95

Surrogates	% Recovery	Limits
TOLUENE-D8	96	88 - 110
BROMOFLUOROBENZENE	98	86 - 114
1,2-DICHLOROETHANE-D4	99	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1604-MS**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/15/93**
ANALYSIS DATE: **12/23/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
Phenol	83	Acenaphthene	86
2-Chlorophenol	90	4-Nitrophenol	73
1,4-Dichlorobenzene	71	2,4-Dinitrotoluene	69
N-Nitroso-di-n-propylamine	83	Pentachlorophenol	68
1,2,4-Trichlorobenzene	73	Pyrene	90
4-Chloro-3-methylphenol	88		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	91	35 - 114
2-Fluorobiphenyl	73	43 - 116
Terphenyl-D14	84	33 - 141
Phenol-D5	80	10 - 94
2-Fluorophenol	74	21 - 100
2,4,6-Tribromophenol	65	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

IT ANALYTICAL SERVICES
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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1604-MS**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000
UNITS: **% REC**

	Result
Aluminum	100
Barium	86
Cadmium	79
Calcium	121
Chromium	80
Copper	80
Iron	90
Magnesium	111
Manganese	79
Nickel	77
Potassium	96
Selenium	72
Silver	80
Sodium	99
Zinc	79

Data qualifier key:

E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
\+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Referenced notes for these results:

Matrix spike recovery outside control limits due to matrix interference for analysis of cadmium, manganese, nickle, selenium, and zinc by ICPES. LCS / LCSD results and all other method Quality Control within acceptance limits.

Matrix spike recovery and % RPD for matrix spikes outside control limits due to matrix interference for analysis of calcium by ICPES. LCS / LCSD results and all other method Quality Control within acceptance limits.

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001 409832-003-01 Work Order: B3-12-151

SAMPLE ID: **A1604-MSD**
SAMPLE DATE: **12/10/93 14:45:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric	1	490	10	MG/L AS CACO3	12/17/93	EPA310_1
TPH - IR		92		% REC	12/27/93	EPA418_1
Phenolics		85		% REC	01/06/94	EPA9066
Chloride by Ion Chrom.		97		% REC	12/18/93	EPA300_0
Chemical Oxygen Demand		104		% REC	12/28/93	EPA410_4
Chromium VI		98		% REC	12/11/93	EPA7196
Nitrate and Nitrite		94		% REC	12/14/93	EPA353_2
Silica		81		% REC	12/29/93	370_1
Sulfate by Ion Chrom.		79		% REC	12/16/93	EPA300_0
Total Dissolved Solids	2	620	10	MG/L	12/14/93	EPA160_1
Total Kjeldahl Nitrogen		94		% REC	01/10/94	EPA351_3
Total Organic Carbon		107		% REC	12/20/93	EPA415_1
Total Suspended Solids	3	40	10	MG/L	12/14/93	EPA160_2
Total Phosphorus		96		% REC	01/10/94	EPA365_3

Referenced notes for these results:

1 Duplicate analysis performed in lieu of a matrix spike.

2 Duplicate analysis performed in lieu of a matrix spike.

3 Duplicate analysis performed in lieu of a matrix spike.

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1604-MSD**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	100	Trichloroethene	85
		Benzene	98
		Toluene	94
		Chlorobenzene	95

Surrogates	% Recovery	Limits
TOLUENE-D8	96	88 - 110
BROMOFLUOROBENZENE	96	86 - 114
1,2-DICHLOROETHANE-D4	99	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001 409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1604-MSD**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/15/93**
ANALYSIS DATE: **12/23/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
Phenol	86	Acenaphthene	88
2-Chlorophenol	93	4-Nitrophenol	78
1,4-Dichlorobenzene	78	2,4-Dinitrotoluene	69
N-Nitroso-di-n-propylamine	85	Pentachlorophenol	78
1,2,4-Trichlorobenzene	80	Pyrene	92
4-Chloro-3-methylphenol	92		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	97	35 - 114
2-Fluorobiphenyl	76	43 - 116
Terphenyl-D14	83	33 - 141
Phenol-D5	76	10 - 94
2-Fluorophenol	76	21 - 100
2,4,6-Tribromophenol	73	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-151

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1604-MSD**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000

UNITS: % REC	Result
Aluminum	92
Barium	81
Cadmium	76
Calcium	95
Chromium	76
Copper	76
Iron	84
Magnesium	93
Manganese	74
Nickel	74
Potassium	92
Selenium	72
Silver	76
Sodium	84
Zinc	75

Data qualifier key:

E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
\+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Referenced notes for these results:

Matrix spike dulicate recovery outside control limits due to matrix interference for analysis of cadmium, manganese, nickle, selenium, silver, chromium, copper, and zinc by ICPES. LCS / LCSD results and all other method Quality Control within acceptance limits.

% RPD for matrix spikes outside control limits due to matrix interference for analysis of calcium by ICPES. LCS / LCSD results and all other method Quality Control within acceptance limits.

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Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

409832-003-01 Work Order: B3-12-151

SAMPLE ID: **A1605**
SAMPLE DATE: **12/10/93 13:20:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		450	10	MG/L as CaCO3	12/15/93	EPA310_1
TPH - IR		1.0U	1.0	MG/L	12/27/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		1.0U	1.0	MG/L	12/16/93	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/11/93	EPA7196
Nitrate and Nitrite		0.050U	0.050	MG/L	12/14/93	EPA353_2
Silica		0.20U	0.20	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		1.0U	1.0	MG/L	12/16/93	EPA300_0
Total Dissolved Solids		17	10	MG/L	12/14/93	EPA160_1
Total Kjeldahl Nitrogen		0.25U	0.25	MG/L	01/10/94	EPA351_3
Total Organic Carbon		1.0U	1.0	MG/L	12/20/93	EPA415_1
Total Suspended Solids		10U	10	MG/L	12/14/93	EPA160_2
Total Phosphorus		0.10U	0.10	MG/L	01/10/94	EPA365_3

Company: IT CORPORATION
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409832-003-01 Work Order: B3-12-151

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1605**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/18/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	94	88 - 110
BROMOFLUOROBENZENE	96	86 - 114
1,2-DICHLOROETHANE-D4	101	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1605**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/15/93**
ANALYSIS DATE: **12/23/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	1.3	J	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1605**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	93	35 - 114
2-Fluorobiphenyl	74	43 - 116
Terphenyl-D14	85	33 - 141
Phenol-D5	89	10 - 94
2-Fluorophenol	77	21 - 100
2,4,6-Tribromophenol	72	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
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409832-003-01 Work Order: B3-12-151

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1605**
SAMPLE DATE: **12/10/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.00000
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	0.20	U	0.20
Barium	0.20	U	0.20
Cadmium	0.0050	UN	0.0050
Calcium	5.0	N	5.0
Chromium	0.010	UN	0.010
Copper	0.025	UN	0.025
Iron	0.10	U	0.10
Magnesium	5.0	U	5.0
Manganese	0.015	UN	0.015
Nickel	0.040	UN	0.040
Potassium	5.0	U	5.0
Selenium	0.10	UN	0.10
Silver	0.010	UN	0.010
Sodium	5.0	U	5.0
Zinc	0.020	UN	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Company: IT CORPORATION
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409832-003-01 Work Order: B3-12-151

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		10U	10	MG/L as CaCO3	12/15/93	EPA310_1
TPH - IR		1.0U	1.0	MG/L	12/27/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		1.0U	1.0	MG/L	12/16/93	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/11/93	EPA7196
Nitrate and Nitrite		0.050U	0.050	MG/L	12/14/93	EPA353_2
Silica		0.20U	0.20	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		1.0U	1.0	MG/L	12/16/93	EPA300_0
Total Dissolved Solids		10U	10	MG/L	12/14/93	EPA160_1
Total Kjeldahl Nitrogen		0.25U	0.25	MG/L	01/07/94	EPA351_3
Total Organic Carbon		1.0U	1.0	MG/L	12/20/93	EPA415_1
Total Suspended Solids		10U	10	MG/L	12/14/93	EPA160_2
Total Phosphorus		0.10U	0.010	MG/L	01/07/94	EPA365_3

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409832-003-01 Work Order: B3-12-151

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/17/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	94	88 - 110
BROMOFLUOROBENZENE	92	86 - 114
1,2-DICHLOROETHANE-D4	102	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/10/94
Client Work ID: D.O. 5001

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409832-003-01 Work Order: B3-12-151

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **12/15/93**
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	82	35 - 114
2-Fluorobiphenyl	85	43 - 116
Terphenyl-D14	81	33 - 141
Phenol-D5	75	10 - 94
2-Fluorophenol	64	21 - 100
2,4,6-Tribromophenol	73	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
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409832-003-01 Work Order: B3-12-151

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**
PREP DATE: 12/16/93
ANALYSIS DATE: **01/05/94**
DILUTION FACTOR: 1.0
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	0.20	U	0.20
Barium	0.20	U	0.20
Cadmium	0.0050	U	0.0050
Calcium	5.0	U	5.0
Chromium	0.010	U	0.010
Copper	0.025	U	0.025
Iron	0.10	U	0.10
Magnesium	5.0	U	5.0
Manganese	0.015	U	0.015
Nickel	0.040	U	0.040
Potassium	5.0	U	5.0
Selenium	0.010	U	0.010
Silver	0.010	U	0.010
Sodium	5.0	U	5.0
Zinc	0.020	U	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

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SAMPLE ID: **LAB BLANK #2**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		10U	10	MG/L as CaCO3	12/17/93	EPA310_1
Total Kjeldahl Nitrogen		0.25U	0.25	MG/L	01/10/94	EPA351_3
Total Phosphorus		0.10U	0.10	MG/L	01/10/94	EPA365_3

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IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **Alkalinity, Titrimetric** TEST CODE **310_1**

Alkalinity	EPA 310.1 - Chemical Analysis of Water and Wastewater. Titrimetric with sulfuric acid.

TEST NAME **TPH - IR** TEST CODE **418_1**

418_1	Method 418.1: Total Recoverable Petroleum Hydorcarbons, infrared spectrophotmetric method. Methods for the chemical analysis of water and wastes. USEPA.

TEST NAME **ICP Metals** TEST CODE **6010**

Metals by ICP	Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables	Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **Phenolics** TEST CODE **9066**

Phenolics	SW-846 Method 9066. Total Recoverable Phenolics. Colorimetric, Automated 4-AAP with Distillation. Equivalent to EPA Method 420.2.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

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TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace	Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **Chloride by Ion Chrom.** TEST CODE **CL_IC**

Chloride	USEPA 300.0 - The determination of inorganic anions in water by ion chromatography.

TEST NAME **Chemical Oxygen Demand** TEST CODE **COD**

COD	EPA 410.4 - Chemical Analysis of Water and Wastewater. Colorimetric analysis for Chemical Oxygen Demand.

TEST NAME **Chromium VI** TEST CODE **CR_VI**

Chromium VI	Method 7196, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Colorimetric analysis. Equivalent to Standard Methods 3500-Cr D.

TEST NAME **Mercury** TEST CODE **HG_AA**

Mercury	Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water. Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK4**

Method not available.

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TEST NAME **Nitrate and Nitrite** TEST CODE **NO3NO2**

Nitrate + Nitrite	Method 353.2-Chemical Analysis of Water and Wastewater. Colorimetric Automated Cadmium Reduction method using Lachat autoanalyzer for NO3 and NO2 as N.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Silica** TEST CODE **SIO2**

Silica	Method 370.1-Chemical Analysis of Water and Wastewater. Colorimetric Analysis. This is equal to ASTM D859B.

TEST NAME **Sulfate by Ion Chrom.** TEST CODE **SO4_IC**

Sulfate	USEPA Method 300.0 - The Determination of Inorganic Anions in Water by Ion Chromatography.

TEST NAME **Total Dissolved Solids** TEST CODE **TDS**

Total Dissolved Solids	Method 160.1-Chemical Analysis of Water and Wastewater. Gravimetric analysis.

TEST NAME **Total Kjeldahl Nitrogen** TEST CODE **TKN_N**

Kjeldahl Nitrogen	Method 351.3-Chemical Analysis of Water and Wastewater. Digestion and colorimetric analysis.

TEST NAME **Total Organic Carbon** TEST CODE **TOC**

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AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-151

TEST NAME **Total Organic Carbon** TEST CODE **TOC**

Total Organic Carbon	Method 415.1-Chemical Analysis of Water and Wastewater. Chemical oxidation and nondispersive infrared analysis. Equivalent to SW-846 Method 9060. Sample prep is instrument manufacturer specific.

TEST NAME **Total Suspended Solids** TEST CODE **TSS**

Total Suspended Solids	Method 160.2-Chemical Analysis of Water and Wastewater. Filtration and gravimetric analysis of non-filterable residue.

TEST NAME **Total Phosphorus** TEST CODE **T_P**

Total Phosphorus	Method 365.3-Chemical Analysis of Water and Wastewater. Digestion and colorimetric analysis.

TEST NAME **ICPES Digestion - Water** TEST CODE **Z3005**

Water Digestion	Method 3005A, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Digestion procedure for the preparation of surface and ground water samples for analysis by flame atomic absorption spectroscopy and inductively coupled plasma spectroscopy. The procedure determines total recoverable or dissolved metals.

TEST NAME **GFAA Digestion - Water** TEST CODE **Z3020**

Water Digestion	Method 3020, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace.

B312151

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 314024
Page 1 of 4

Project Name/No. [1] Tinker 5001 / 409832
Sample Team Members [2] MW / JS / KK
Profit Center No. [3] 3527
Project Manager [4] Jimmy Taylor
Purchase Order No. [6] 409832.03.01
Required Report Date [11] Normal

Samples Shipment Date [7] 12/10/93
Lab Destination [8] ITAS Austin
Lab Contact [9] Karman Deane
Project Contact/Phone [12] (405) 736-2260 Dan McGregor
Carrier/Waybill No. [13] 8460755800 FedEx

Bill to: [5] 409832.03.01 D.O. 5001
Report to: [10] Tim Jennings IT Austin

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
A 1599	Trip Blank	12/2/93 1700	Clear Glass	40ml	HCl	8240 VOC	cool 2-3°C	B329020
A 1600	well water / Fire Training Area	12/10/93 1300	Clear Glass	(2) 40ml	HCl	8240 VOC	Tm 12/11/93	↓
			Amber glass	2.5L	ice	8270 SVOC		3146032
				1L	H_2SO_4	418.1 TPH		
				500ml		9066 Phenols		
				250ml		410.4 COD 415.1 TOC		
				250ml	↓	Nitrate/Nitrite 353.2 TKN 351.3		
↓	↓	↓	Plastic	500ml	HNO_3	Metals 6010 / 7000	↓	

Special Instructions: [23]

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☑ Archive (mos.)

Turnaround Time Required: [26]
Normal ☑ Rush ☐

QC Level: [27]
I. ☑ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation) Matthew J. Wilson ITAS Austin Date: 12-10-93 Time: 1545	1. Received by [28] (Signature/Affiliation) IT Date: 12/11/93 Time: 0925
2. Relinquished by (Signature/Affiliation) Date: Time:	2. Received by (Signature/Affiliation) Date: Time:
3. Relinquished by (Signature/Affiliation) Date: Time:	3. Received by (Signature/Affiliation) Date: Time:

Comments: [29]

MCA 3/15/91

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

B312151

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 314024

Project Name Tinker 5001 Project No. 409832 Samples Shipment Date 12/10/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
A1600	Well water/Fire Training Area	12/10/93 1300	Plastic	1L	ice	Stardard GW parameters as per work plan	Good 2-3°C	
				2x 125ml	ice	7196 Cr^{6+}	12/11/93	
A1605	Field Blank	12/10/93 1320	clear glass	(2) 40ml	HCl	8240 VOC		B329102O
			Amber glass	~~2.5L~~ 1L new	ice	8270 SVOC		
				1L	H_2SO_4	418.1 TPH		
				500ml		9066 Phenols		
				250ml		410.4 COD 415.1 TOC		
				250ml		Nitrate/Nitrite 353.2 TKN 351.3		
			Plastic	500ml	HNO_3	Metals 6010/7000		
				1L	ice	GW parameters as per work plan		
				125ml	ice	7196 Cr^{6+}		
A1601	Well water/Fire Training Area	12/10/93 1355	Clear Glass	(2) 40ml	HCl	8240 VOC		B329102O
			Amber glass	2.5L	ice	8270 SVOC		3146032
				1L	H_2SO_4	418.1 TPH		
				500ml		9066 Phenols		
				250ml		410.4 COD 415.1 TOC		
						Nitrate/Nitrite 353.2 TKN 351.3		
			Plastic	500ml	HNO_3	Metals 6010/7000		
				1L	ice	GW parameters as per work plan		
				125ml		7196 Cr^{6+}		

White: To accompany samples Yellow: Field copy

*See back of form for special instructions

MCA 3.15.91

B312151

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 314024
Page 3 of 4

Project Name Tinker 5001 | Project No. 409832.03.01 | Samples Shipment Date 12/10/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
A1602 Dup	Well water/Duplicate	12/10/93 13:55	clear glass	(2) 40ml	HCl	8240 VOC	Good 2-3°C	B329102U
			Amber glass	2.5L	ice	8270 SVOC	12/11/93	314602
				1L	H_2SO_4	418.1 TPH		
				500ml		9066 Phenols		
				250ml		410.4 COD 415.1 TOC		
			↓	↓	↓	Nitrate/Nitrite 353.2 TKN 351.3		
			Plastic	500ml	HNO_3	Metals 6010/7000		
				1L	ice	GW parameters as per work plan		
↓	↓	↓	↓	125ml	↓	Cr^{6+} 7196	↓	
A1603	Well Water/Fire Training Area	12/10/93 1430	clear glass	(2) 40ml	HCl	8240 VOC		B329102U
			Amber glass	2.5L	ice	8270 SVOC		314603 2
				1L	H_2SO_4	418.1 TPH		
				500ml		9066 Phenols		
				250ml		410.4 COD 415.1 TOC		
			↓	↓	↓	Nitrate/Nitrite 353.2 TKN 351.3		
			Plastic	500ml	HNO_3	6010/7000 metals		
				1L	ice	GW parameters as per work plan		
↓	↓	↓	↓	125ml	↓	Cr^{6+} 7196	↓	

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3.15.91

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

B312151

Reference Document No.[30] 314024

Project Name Tinker 5001

Project No. 409832

Samples Shipment Date 12/10/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
A1604	Well water / Fire Training Area	12/10/93 1445	Clear glass	(2) 40ml	HCl	8240 VOC	Rec'd Twice	3329,020
			Amber glass	2.5 L	ice	8270 SVOC	what is listed here...	3146032
				1 L	H_2SO_4	418.1 TPH	Good 2-3°C	
				500ml		9066 Phenols	See COC	
				250ml		410.4 COD 415.1 TOC	Th 12/11/93	
			↓	↓	↓	Nitrate/Nitrite 353.2 TKN 351.3		
			Plastic	500ml	HNO_3	6010/7000 metals		
				1 L	ice	GW parameters as per work plan		
			↓	125ml	↓	Cr^{6+} 7196	↓	

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3.15.91

Auxiliary Data Summary 01/11/94

Work order : B312151 Sample ID : A1600

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02B	3520MS				12/21/93	
	418_1	B312151-10A	1220TPHIR1	12/20/93	12/27/93	1.0
02C	310_1	B312151-11A	1217310_11	12/17/93	12/17/93	1.0
	9066	B312151-10A	122790661	12/27/93	01/06/94	1.0
	CL_IC	B312151-10A	1216CL_IC1	12/16/93	12/16/93	5.0
	COD	B312151-10A	1228COD2	12/28/93	12/28/93	1.0
	CR_VI	B312151-10A	1211CR_VI2	12/11/93	12/11/93	1.0
	NO3NO2	B312151-10A	1214NO3NO2	12/14/93	12/14/93	10.0
	SIO2	B312151-10A	1229SIO21B	12/29/93	12/29/93	10.0
	SO4_IC	B312151-10A	1216SO4_IC	12/16/93	12/16/93	5.0
	TDS	B312151-10A	1214TDS1	12/14/93	12/14/93	1.0
	TKN_N	B312151-10A	0105TKN_N1	01/05/94	01/07/94	1.0
	TOC	B312151-10A	1220TOC3B	12/20/93	12/20/93	1.0
	TSS	B312151-10A	1214TSS1	12/14/93	12/14/93	1.0
	T_P	B312151-10A	0105T_P1	01/05/94	01/07/94	1.0
02D						
	AS_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0
	HG_AA	B312151-10A	1216HGAA3	12/16/93	12/16/93	1.0
	PB_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312151 Sample ID : A1601

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03B						
	418_1	B312151-10A	1220TPHIR1	12/20/93	12/27/93	1.0
03C	310_1	B312151-10A	1215310_12	12/15/93	12/15/93	1.0
	9066	B312151-10A	122790661	12/27/93	01/06/94	1.0
	CL_IC	B312151-10A	1216CL_IC1	12/18/93	12/18/93	10.0
	COD	B312151-10A	1228COD2	12/28/93	12/28/93	1.0
	CR_VI	B312151-10A	1211CR_VI2	12/11/93	12/11/93	1.0
	NO3NO2	B312151-10A	1214NO3NO2	12/14/93	12/14/93	10.0
	SIO2	B312151-10A	1229SIO21B	12/29/93	12/29/93	10.0
	SO4_IC	B312151-10A	1216SO4_IC	12/16/93	12/16/93	5.0
	TDS	B312151-10A	1214TDS1	12/14/93	12/14/93	1.0
	TKN_N	B312151-10A	0105TKN_N1	01/05/94	01/07/94	1.0
	TOC	B312151-10A	1220TOC3B	12/20/93	12/20/93	1.0
	TSS	B312151-10A	1214TSS1	12/14/93	12/14/93	1.0
	T_P	B312151-10A	0105T_P1	01/05/94	01/07/94	1.0
03D						
	AS_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0
	HG_AA	B312151-10A	1216HGAA3	12/16/93	12/16/93	1.0
	PB_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312151 Sample ID : A1602

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04B						
	418_1	B312151-10A	1220TPHIR1	12/20/93	12/27/93	1.0
04C	310_1	B312151-10A	1215310_12	12/15/93	12/15/93	1.0
	9066	B312151-10A	122790661	12/27/93	01/06/94	1.0
	CL_IC	B312151-10A	1216CL_IC1	12/18/93	12/18/93	10.0
	COD	B312151-10A	1228COD2	12/28/93	12/28/93	1.0
	CR_VI	B312151-10A	1211CR_VI2	12/11/93	12/11/93	1.0
	NO3NO2	B312151-10A	1214NO3NO2	12/14/93	12/14/93	10.0
	SIO2	B312151-10A	1229SIO21B	12/29/93	12/29/93	10.0
	SO4_IC	B312151-10A	1216SO4_IC	12/16/93	12/16/93	10.0
	TDS	B312151-10A	1214TDS1	12/14/93	12/14/93	1.0
	TKN_N	B312151-10A	0105TKN_N1	01/05/94	01/07/94	1.0
	TOC	B312151-10A	1220TOC3B	12/20/93	12/20/93	1.0
	TSS	B312151-10A	1214TSS1	12/14/93	12/14/93	1.0
	T_P	B312151-10A	0105T_P1	01/05/94	01/07/94	1.0
04D						
	AS_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0
	HG_AA	B312151-10A	1216HGAA3	12/16/93	12/16/93	1.0
	PB_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312151 Sample ID : A1603

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
05B						
	418_1	B312151-10A	1220TPHIR1	12/20/93	12/27/93	1.0
05C	310_1	B312151-10A	1215310_12	12/15/93	12/15/93	1.0
	9066	B312151-10A	122790661	12/27/93	01/06/94	1.0
	CL_IC	B312151-10A	1216CL_IC1	12/16/93	12/16/93	4.0
	COD	B312151-10A	1228COD2	12/28/93	12/28/93	1.0
	CR_VI	B312151-10A	1211CR_VI2	12/11/93	12/11/93	1.0
	NO3NO2	B312151-10A	1214NO3NO2	12/14/93	12/14/93	10.0
	SIO2	B312151-10A	1229SIO21B	12/29/93	12/29/93	10.0
	SO4_IC	B312151-10A	1216SO4_IC	12/16/93	12/16/93	4.0
	TDS	B312151-10A	1214TDS1	12/14/93	12/14/93	1.0
	TKN_N	B312151-11A	0107TKN_N1	01/07/94	01/10/94	1.0
	TOC	B312151-10A	1220TOC3B	12/20/93	12/20/93	1.0
	TSS	B312151-10A	1214TSS1	12/14/93	12/14/93	1.0
	T_P	B312151-11A	0107T_P1	01/07/94	01/10/94	1.0
05D						
	AS_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0
	HG_AA	B312151-10A	1216HGAA3	12/16/93	12/16/93	1.0
	PB_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312151 Sample ID : A1604

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
06B						
	418_1	B312151-10A	1220TPHIR1	12/20/93	12/27/93	1.0
06C	310_1	B312151-10A	1215310_12	12/15/93	12/15/93	1.0
	9066	B312151-10A	122790661	12/27/93	01/06/94	1.0
	CL_IC	B312151-10A	1216CL_IC1	12/18/93	12/18/93	10.0
	COD	B312151-10A	1228COD2	12/28/93	12/28/93	1.0
	CR_VI	B312151-10A	1211CR_VI2	12/11/93	12/11/93	1.0
	NO3NO2	B312151-10A	1214NO3NO2	12/14/93	12/14/93	10.0
	SIO2	B312151-10A	1229SIO21B	12/29/93	12/29/93	25.0
	SO4_IC	B312151-10A	1216SO4_IC	12/16/93	12/16/93	5.0
	TDS	B312151-10A	1214TDS1	12/14/93	12/14/93	1.0
	TKN_N	B312151-11A	0107TKN_N1	01/07/94	01/10/94	1.0
	TOC	B312151-10A	1220TOC3B	12/20/93	12/20/93	1.0
	TSS	B312151-10A	1214TSS1	12/14/93	12/14/93	1.0
	T_P	B312151-11A	0107T_P1	01/07/94	01/10/94	1.0
06D						
	AS_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0
	HG_AA	B312151-10A	1216HGAA3	12/16/93	12/16/93	1.0
	PB_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312151 Sample ID : A1604-MS

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
07B						
	418_1	B312151-10A	1220TPHIR1	12/20/93	12/27/93	1.0
07C	310_1	B312151-10A	1215310_12	12/15/93	12/15/93	1.0
	9066	B312151-10A	122790661	12/27/93	01/06/94	1.0
	CL_IC	B312151-10A	1216CL_IC1	12/18/93	12/18/93	10.0
	COD	B312151-10A	1228COD2	12/28/93	12/28/93	1.0
	CR_VI	B312151-10A	1211CR_VI2	12/11/93	12/11/93	1.0
	NO3NO2	B312151-10A	1214NO3NO2	12/14/93	12/14/93	10.0
	SIO2	B312151-10A	1229SIO21B	12/29/93	12/29/93	25.0
	SO4_IC	B312151-10A	1216SO4_IC	12/16/93	12/16/93	5.0
	TDS	B312151-10A	1214TDS1	12/14/93	12/14/93	1.0
	TKN_N	B312151-11A	0107TKN_N1	01/07/94	01/10/94	1.0
	TOC	B312151-10A	1220TOC3B	12/20/93	12/20/93	1.0
	TSS	B312151-10A	1214TSS1	12/14/93	12/14/93	1.0
	T_P	B312151-11A	0107T_P1	01/07/94	01/10/94	1.0
07D						
	AS_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0
	HG_AA	B312151-10A	1216HGAA3	12/16/93	12/16/93	1.0
	PB_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312151 Sample ID : A1604-MSD

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
08B						
	418_1	B312151-10A	1220TPHIR1	12/20/93	12/27/93	1.0
08C	310_1	B312151-11A	1217310_11	12/17/93	12/17/93	1.0
	9066	B312151-10A	122790661	12/27/93	01/06/94	1.0
	CL_IC	B312151-10A	1216CL_IC1	12/18/93	12/18/93	10.0
	COD	B312151-10A	1228COD2	12/28/93	12/28/93	1.0
	CR_VI	B312151-10A	1211CR_VI2	12/11/93	12/11/93	1.0
	NO3NO2	B312151-10A	1214NO3NO2	12/14/93	12/14/93	10.0
	SIO2	B312151-10A	1229SIO21B	12/29/93	12/29/93	25.0
	SO4_IC	B312151-10A	1216SO4_IC	12/16/93	12/16/93	5.0
	TDS	B312151-10A	1214TDS1	12/14/93	12/14/93	10.0
	TKN_N	B312151-11A	0107TKN_N1	01/07/94	01/10/94	1.0
	TOC	B312151-10A	1220TOC3B	12/20/93	12/20/93	1.0
	TSS	B312151-10A	1214TSS1	12/14/93	12/14/93	1.0
	T_P	B312151-11A	0107T_P1	01/07/94	01/10/94	1.0
08D						
	AS_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0
	HG_AA	B312151-10A	1216HGAA3	12/16/93	12/16/93	1.0
	PB_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312151 Sample ID : A1605

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
09B						
	418_1	B312151-10A	1220TPHIR1	12/20/93	12/27/93	1.0
09C	310_1	B312151-10A	1215310_12	12/15/93	12/15/93	1.0
	9066	B312151-10A	122790661	12/27/93	01/06/94	1.0
	CL_IC	B312151-10A	1216CL_IC1	12/16/93	12/16/93	1.0
	COD	B312151-10A	1228COD2	12/28/93	12/28/93	1.0
	CR_VI	B312151-10A	1211CR_VI2	12/11/93	12/11/93	1.0
	NO3NO2	B312151-10A	1214NO3NO2	12/14/93	12/14/93	1.0
	SIO2	B312151-10A	1229SIO21B	12/29/93	12/29/93	1.0
	SO4_IC	B312151-10A	1216SO4_IC	12/16/93	12/16/93	1.0
	TDS	B312151-10A	1214TDS1	12/14/93	12/14/93	1.0
	TKN_N	B312151-11A	0107TKN_N1	01/07/94	01/10/94	1.0
	TOC	B312151-10A	1220TOC3B	12/20/93	12/20/93	1.0
	TSS	B312151-10A	1214TSS1	12/14/93	12/14/93	1.0
	T_P	B312151-11A	0107T_P1	01/07/94	01/10/94	1.0
09D						
	AS_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0
	HG_AA	B312151-10A	1216HGAA3	12/16/93	12/16/93	1.0
	PB_GF	B312151-10A	121530203	12/15/93	12/19/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312151 Sample ID : LAB BLANK #1

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
10A	310_1	B312151-10A	1215310_12	12/15/93	12/15/93	1.0
	418_1	B312151-10A	1220TPHIR1	12/20/93	12/27/93	1.0
	9066	B312151-10A	122790661	12/27/93	01/06/94	1.0
	AS_GF	B312151-10A	12153020 3	12/15/93	12/19/93	1.0
	CL_IC	B312151-10A	1216CL_IC1	12/16/93	12/16/93	1.0
	COD	B312151-10A	1228COD2	12/28/93	12/28/93	1.0
	CR_VI	B312151-10A	1211CR_VI2	12/11/93	12/11/93	1.0
	HG_AA	B312151-10A	1216HGAA3	12/16/93	12/16/93	1.0
	NO3NO2	B312151-10A	1214NO3NO2	12/14/93	12/14/93	1.0
	PB_GF	B312151-10A	12153020 3	12/15/93	12/19/93	1.0
	SIO2	B312151-10A	1229SIO21B	12/29/93	12/29/93	1.0
	SO4_IC	B312151-10A	1216SO4_IC	12/16/93	12/16/93	1.0
	TDS	B312151-10A	1214TDS1	12/14/93	12/14/93	1.0
	TKN_N	B312151-10A	0105TKN_N1	01/05/94	01/07/94	1.0
	TOC	B312151-10A	1220TOC3B	12/20/93	12/20/93	1.0
	TSS	B312151-10A	1214TSS1	12/14/93	12/14/93	1.0
	T_P	B312151-10A	0105T_P1	01/05/94	01/07/94	1.0

Auxiliary Data Summary 01/11/94

Work order : B312151 Sample ID : LAB BLANK #2

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
11A	310_1	B312151-11A	1217310_11	12/17/93	12/17/93	1.0
	TKN_N	B312151-11A	0107TKN_N1	01/07/94	01/10/94	1.0
	T_P	B312151-11A	0107T_P1	01/07/94	01/10/94	1.0

12/16

TINKER_5001

WORK ORDER # B312151

OF WATER SAMPLES 11

OF SOIL SAMPLES

8240	✓✓	SIO2	✓✓
8270	✓✓	TDS	✓✓
IR	✓✓	TKN_N	✓✓
AS	✓✓	TOC	✓✓
CRIV	✓✓	TSS	✓✓
HG	✓✓	T_P	✓✓
ICP	✓✓		
PB	✓✓		
SO4_IC	✓✓		
310_1	✓✓		
9066	✓✓		
CL_IC	✓✓		
COD	✓✓		
NO3NO2	✓✓		

2-6 +9

APPENDIX A

DEFINITIONS

ND(U)	-	Analyte was analyzed for, but not detected. The value given after the ND or "U" is the detection limit for that compound.
A	-	The compound denoted with an "A" indicates a suspected aldol condensation product.
B	-	Indicates the compound was also detected in the blank, but at levels less than 5X the detection limit. Values for this compound may be suspect.
J	-	Indicates the compound was detected in the sample, but at levels less than the detection limit, but above the MDL. Results should be requarded as estimated.
D	-	Indicates that the compound was identified in an analysis at a secondary dilution factor.
N	-	Indicates presumptive evidence of a compound. This flag is used for tentatively identified compounds.

MS - Matrix Spike

MSD - Matrix Spike Duplicate

RPD - Relative Percent Difference

DL - Detection limit

UG/L - Micrograms/Liter

UG/KG - Micrograms/Kilogram

MG/KG - Milligrams/Kilogram

MG/L - Milligrams/Liter

%REC - Percent Recovery

QC Acceptance Limits

Method 8240	Water	Soil
Surrogate % Recoveries		
BFB	86-115	74-121
Dichloroethane	76-114	70-120
Toluene-d8	88-110	81-117
Matrix Spike Limits(%)		
1,1-Dichloroethene	61-145	59-172
Trichloroethene	71-120	62-137
Benzne	76-127	66-142
Toluene	76-125	59-139
Chlorobenzene	75-130	60-133

Method 8270	Water	Soil
Surrogate % Recoveries		
Nitrobenzene-d5	35 - 114	23 - 12
2-Fluorobiphenyl	43 - 116	30 - 11
Terphenyl-d14	33 - 141	18 - 13
Phenol-d5	10 - 94	24 - 11
2-Fluorophenol	21 - 100	25 - 12
2,4,6-Tribromophenol	10 - 123	19 - 12
Matrix Spike Limits(%)		
Phenol	14 - 99	15 - 10
Chlorophenol	19 - 107	20 - 11
1,4-Dichlorobenzene	18 - 101	17 - 10
N-Nitroso-di-propylamine	32 - 108	30 - 11
1,2,4-Trichlorobenzene	24 - 109	21 - 11
4-Chloro-3-methylphenol	31 - 111	34 - 10
Acenaphthene	33 - 110	30 - 11
4-Nitrophenol	1 - 141	d - 13
2,4-Dinitrotoluene	35 - 106	31 - 11
Pentachlorophenol	1 - 147	2 - 14
Pyrene	42 - 119	36 - 12

METALS CONTROL LIMITS

ICP: ± 20% for MS/MSD & Duplicate

GF: Control Charts for MS/MSD; ± 20% for Dup

ICV/CCV

GF ICV ± 20%
GF CCV ± 20%
ICP ICV/CCV ± 10%
HG AA ± 20%

CONTROL LIMITS
GRAPHITE FURNACE/MERCURY

ANALYTE	MATRIX	LIMITS	COMMENTS
Hg	water	21 - 170	Control Charts (B inst.)
Hg	soil	44 - 150	Control Charts (B)
As	water	59 - 150	D
As	soil	75 - 125	D
As	water	52 - 140	C
As	soil	35 - 142	C
Pb	water	48 - 153	D
Pb	soil	75 - 125	D
Pb	water	33 - 163	C
Pb	soil	75 - 125	C
Se	water	37 - 136	D
Se	soil	27 - 118	D
Se	water	20 - 147	C
Se	soil	2.6 - 139	C

QC BATCH ID FOR WET CHEM - Test Code: Cl-IC

PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	Cl-IC
BATCH DATE.	12/16/93
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

	Lab Sample ID's
1	B312147-09C
2	-10C
3	B312078-01F
4	B312151-02C
5	-03C
6	-04C
7	-05C
8	-06C
9	-09C
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	121693-1
LCSD ID:	121693-2
MB ID:	121693-1
MS ID:	B312151-07C
MSD ID:	B312151-08C
REP ID:	B312151-06C

Batch QC Results

MDL: _____ PQL: 1.0 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	ND	mg/L	RBO	12/16/93 10:25
LCS % Rec	100	% Rec		
LCSD % Rec	99.4	% Rec		
LCS/LCSD RPD	0.60	% RPD		
MS % Rec	98.5	% Rec		
MSD % Rec	97.0	% Rec		
MS/MSD RPD	1.53	% RPD		
REP RPD	1.15	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: SO4-IC	
PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	300.0
BATCH DATE:	12-16-93
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's	
1	B311261-01D
2	B311074-01D
3	02D
4	~~B3120~~ B312147-09C
5	20C
6	B312078-01E
7	B312137-06A
8	B312151-02C
9	03C
10	04C
11	05C
12	06C
13	07C
14	08C
15	09C
16	
17	
18	
19	
20	

Batch QC ID's	
LCS ID:	LCS 121693-1
LCSD ID:	LCSD 121693-1
MB ID:	PB 121693-1
MS ID:	B312151-07C
MSD ID:	B312151-08C
REP ID:	B312151-06C

Batch QC Results

MDL: _____ PQL: 1.0

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	ND	mg/L	BBG	12-16-93 10:25
LCS % Rec	100	% Rec		
LCSD % Rec	102	% Rec		
LCS/LCSD RPD	2	% RPD		
MS % Rec	86	% Rec		
MSD % Rec	79	% Rec		
MS/MSD RPD	8.5	% RPD		
REP RPD	0.5	% RPD		

Comments:

ITAS_Austin Volatiles QA Spike Lot Summary LOT#: _____

Date/Time: 12/17/93 Intrument: GC/MS A1

Operator: MBP Test/Matrix: 8240 / Water

GC Column: RTX 502.2 Operator: MBP

Type	Lab Sample ID	Lab File ID	Performed (Y or N)
Sample	B312151-06	>A1516	Y
MS	-07	>A1517	↓
MSD	-08	>A1518	↓
LCS	-BS	>ABS17	↓

This QA Spike Lot applies to the following Samples:

#	Client * Sample ID	Lab Sample ID	Lab File ID
01	Trip Blk	B312151-01	
02		-02	
03		-03	
04		-04	
05		-05	
06		-06	
07		-09	
08			
09			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Comments: _____

* - Field used only if necessary.

QC Batch ID

Prep Code/Date: ____/____

Test Code/Date: 8240 / 12/17/93

Set #: 1 Inst. ID: A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY AND BLANK SPIKE RECOVERY

Lab Name: ITAS - Austin Date Ran: 12/17/93 QC BATCH ID
Sample Names:)A1517)A1518)ABS17 Prep Code/Date:
CLIENT ID: Test Code/Date: 8240 | 12/17/93
Matrix Spike - SAM Sample No. B312151/06 Matrix: WATER Set #: Inst.ID: A1
(5.000 ML TO 5 ML) 1.0 X DIL

COMPOUND NAME	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	MS CONC (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.00	.00	49.81	100	61 - 145
Trichloroethene	50.00	99.48	141.88	85	71 - 120
Benzene	50.00	.00	48.42	97	76 - 127
Toluene	50.00	.00	46.42	93	76 - 125
Chlorobenzene	50.00	.00	47.36	95	75 - 130

BLANK CONC (ug/L)	BS CONC (ug/L)	BS % REC #	QC LIMITS REC.
0	50.25	101	61 - 145
0	46.02	92	71 - 120
0	47.69	95	76 - 127
0	46.01	92	76 - 125
0	46.33	93	75 - 130

COMPOUND NAME	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.00	50.19	100	1	14	61 - 145
Trichloroethene	50.00	141.79	85	0	14	71 - 120
Benzene	50.00	48.99	98	1	11	76 - 127
Toluene	50.00	46.76	94	1	13	76 - 125
Chlorobenzene	50.00	47.64	95	1	13	75 - 130

Column to be used to flag recovery and RPD values with an asterisk.

* Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside limits.

00:32 00:58 20:58

SURROGATE RECOVERIES	)A1517	)A1518	)ABS17	LIMITS
Toluene - d8	96	96	95	88 - 110
Bromofluorobenzene	98	96	97	86 - 115
1,2-Dichloroethane - d4	99	99	98	76 - 114

19:57
>A BB17 ⇒ all neg
94
92
102

QC BATCH ID FOR GFAA/CVAA - Test Code: AS_GF	
PREPREP METHOD:	
PREP METHOD:	Z3020
ANALYSIS METHOD:	7060
BATCH DATE:	12/15/93
INSTRUMENT ID:	D
SET (BATCH) #:	3

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312151-02D
2	03D
3	04D
4	05D
5	06D
6	07D
7	08D
8	09D
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID: LCSZ0 121593-2
LCSD ID: LCSDZ0 121593-2
MB ID: PBZ0 121593-2
MS ID: B312151-07D
MSD ID: B312151-08D
REP ID: B312151-06D

Batch QC Results

MDL: 0.010 PQL: 0.010

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.010	MG/L	KMB	12/9/93 12:15
LCS % Rec	96.3	% Rec		
LCSD % Rec	91.5	% Rec		
LCS/LCSD RPD	5.11	% RPD		
MS % Rec	92.5	% Rec		
MSD % Rec	92.5	% Rec		
MS/MSD RPD	0.0	% RPD		
REP RPD	0.0	% RPD		

Comments: Analytical Spike = 117 %

QC BATCH ID FOR GFAA/CVAA - Test Code: PB_GF	
PREPREP METHOD:	
PREP METHOD:	Z3020
ANALYSIS METHOD:	7421
BATCH DATE:	12/15/93
INSTRUMENT ID:	C
SET (BATCH) #:	3

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312151-020
2	030
3	040
4	050
5	060
6	070
7	080
8	090
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID: LCS20 121593-2
LCSD ID: LCSD20 121593-2
MB ID: MB20 121593-2
MS ID: B312151-07D
MSD ID: B312151-08D
REP ID: B312151-06D

Batch QC Results

MDL: 0.0030 PQL: 0.0050

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.0030	MG/L	KMB	12/19/93 11:51
LCS % Rec	104	% Rec		
LCSD % Rec	105	% Rec		
LCS/LCSD RPD	0.957	% RPD		
MS % Rec	101	% Rec		
MSD % Rec	98.0	% Rec		
MS/MSD RPD	3.02	% RPD		
REP RPD	0.0	% RPD	↓	↓

Comments: Analytical Spike = 112 %

Hg-AA 12/16/93 MLA

QC BATCH ID FOR GFAA/CVAA - Test Code:	
PREPREP METHOD:	1311
PREP METHOD:	
ANALYSIS METHOD:	7470
BATCH DATE:	12/16/93
INSTRUMENT ID:	A
SET (BATCH) #:	1 (3)

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312151-02D
2	03D
3	04D
4	05D
5	06D
6	07D
7	08D
8	09D
9	
10	
11	
12	
13	
14	MLA 12/16/93
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	ICV 121693-1
LCSD ID:	CCV-1
MB ID:	ICB
MS ID:	B312151-07D
MSD ID:	08D
REP ID:	06D

Batch QC Results

MDL: 0.020 PQL: 0.02(

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0.0	mg/L	MLA	12/16/93 22:0
LCS % Rec	96.5	% Rec		
LCSD % Rec	102	% Rec		
LCS/LCSD RPD	5.54	% RPD		
MS % Rec	111	% Rec		
MSD % Rec	112	% Rec		
MS/MSD RPD	0.90	% RPD		
REP RPD	0	% RPD		

Comments:

Test Code/Date: 8270 / 12-15-93
Set #: _____ Inst. ID: _____

Type	Lab Sample ID	Lab File ID	Performed (Y or N)
Blank			
Sample			
MS	B312151-7B	6MS	
MSD	-8B	6MSD	
LCS	-LCS		

This QA Spike Lot applies to the following Samples:

#	Client Sample ID	Lab Sample ID	Lab File ID
1		B312151-2B	12-15 Set1
2		-4B	5
3		-3B	
4		-5B	
5		-6B	
6		-9B	
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Comments: _____

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY AND BLANK SPIKE RECOVERY

Lab Name: ITAS - Austin CLIENT ID: QC BATCH ID
Sample Names: DM517 DD518 Prep Code/Date: 3520 | 12/15/93
Date Ran: 12/23/93 12/23/93 Test Code/Date: 8270 | 12/15/93
Time Ran: 1.48 2.16 Set #: 1 Inst.ID:D
Matrix Spike - SAM Sample No. B312151/06 Matrix: WATER
(1000 ML TO 1 ML) 1.0 X OIL

COMPOUND NAME	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	MS CONC (ug/L)	MS % REC #	QC LIMITS REC.	BLANK CONC (ug/L)	BS CONC (ug/L)	BS % REC #	QC LIMITS REC.
PHENOL	100.00	.00	83.42	83	14 - 99	0	.00	0 *	14 - 99
2-CHLOROPHENOL	100.00	.00	90.12	90	19 - 107	0	.00	0 *	19 - 107
1,4-DICHLOROBENZENE	50.00	.00	35.45	71	18 - 101	0	.00	0 *	18 - 101
N-NITROSODI-N-PROPYLAMINE	50.00	.00	41.66	83	32 - 108	0	.00	0 *	32 - 108
1,2,4-TRICHLOROBENZENE	50.00	.00	36.74	73	24 - 109	0	.00	0 *	24 - 109
4-CHLORO-3-METHYLPHENOL	100.00	.00	88.48	88	31 - 111	0	.00	0 *	31 - 111
ACENAPHTHENE	50.00	.00	43.19	86	33 - 110	0	.00	0 *	33 - 110
4-NITROPHENOL	100.00	.00	73.17	73	1 - 141	0	.00	0 *	1 - 141
2,4-DINITROTOLUENE	50.00	.00	34.27	69	35 - 106	0	.00	0 *	35 - 106
PENTACHLOROPHENOL	100.00	.00	68.34	68	1 - 147	0	.00	0 *	1 - 147
PYRENE	50.00	.00	45.06	90	42 - 119	0	.00	0 *	42 - 119

COMPOUND NAME	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.	CLP LIMITS SPIKE	CLP LIMITS %RPD
PHENOL	100.00	86.37	86	3	41	14 - 99	12 - 110	42
2-CHLOROPHENOL	100.00	93.06	93	3	45	19 - 107	27 - 123	40
1,4-DICHLOROBENZENE	50.00	39.05	78	10	46	18 - 101	36 - 97	28
N-NITROSODI-N-PROPYLAMINE	50.00	42.47	85	2	46	32 - 108	41 - 116	38
1,2,4-TRICHLOROBENZENE	50.00	39.96	80	8	55	24 - 109	39 - 98	28
4-CHLORO-3-METHYLPHENOL	100.00	92.37	92	4	37	31 - 111	23 - 97	42
ACENAPHTHENE	50.00	44.00	88	2	45	33 - 110	46 - 118	31
4-NITROPHENOL	100.00	77.99	78	6	71	1 - 141	10 - 80	50
2,4-DINITROTOLUENE	50.00	34.44	69	0	43	35 - 106	24 - 96	38
PENTACHLOROPHENOL	100.00	78.00	78	13	143	1 - 147	9 - 103	50
PYRENE	50.00	45.92	92	2	18	42 - 119	26 - 127	51

Column to be used to flag recovery and RPD values with an asterisk.
* Values outside of QC limits.
RPD: 0 out of 11 outside limits.
Spike Recovery: 0 out of 22 outside limits.

SURROGATE RECOVERIES	DM517	DD518	D0902	LIMITS
DS-NITROBENZENE	91	97	0 *	103	35 - 114
2-FLUOROBIPHENYL	73	76	0 *	100	43 - 116
D14-P-TERPHENYL	84	83	0 *	114	33 - 141
DS-PHENOL	80	76	0 *	108	10 - 94
2-FLUOROPHENOL	74	76	0 *	90	21 - 100
2,4,6-TRIBROMOPHENOL	65	73	0 *	131 *	10 - 123

1/31/94

WATER SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: ITAS - Austin CLIENT ID: QC BATCH ID
Sample Names: DBP51 DBK51 Prep Code/Date: 3520 | 12/15/93
Date Ran: 12/22/93 12/22/93 Test Code/Date: 8270 | 12/15/93
Time Ran: 22.50 22.30 Set #:1 Inst.ID: 0
Matrix Spike - SAM Sample No. B312151/BS Matrix: WATER
(1000.00 ML TO 1.00 ML) 1.0 X DIL

COMPOUND NAME	SPIKE ADDED (ug/L)	BLANK CONC (ug/L)	BS CONC (ug/L)	BS % REC	#	QC LIMITS REC.	CLP LIMIT SPIKE	%RPD
PHENOL	100.00	.00	86.08	86		14 - 99	12 - 110	42
2-CHLOROPHENOL	100.00	.00	91.08	91		19 - 107	27 - 123	40
1,4-DICHLOROBENZENE	50.00	.00	35.58	71		18 - 101	36 - 97	28
N-NITROSODI-N-PROPYLAMIN	50.00	.00	41.32	83		32 - 108	41 - 116	38
1,2,4-TRICHLOROBENZENE	50.00	.00	34.51	69		24 - 109	39 - 98	28
4-CHLORO-3-METHYLPHENOL	100.00	.00	86.13	86		31 - 111	23 - 97	42
ACENAPHTHENE	50.00	.00	42.18	84		33 - 110	46 - 118	31
4-NITROPHENOL	100.00	.00	71.59	72		1 - 141	10 - 80	50
2,4-DINITROTOLUENE	50.00	.00	34.19	68		35 - 106	24 - 96	38
PENTACHLOROPHENOL	100.00	.00	66.14	66		1 - 147	9 - 103	50
PYRENE	50.00	.00	44.57	89		42 - 119	26 - 127	51

Column to be used to flag recovery and RPD values with an asterisk.
* Values outside of QC limits.
Spike Recovery: 0 out of 11 outside limits.

SURROGATE RECOVERIES	DBP51	DBK51		LIMITS
D5-NITROBENZENE	91	100		35 - 114
2-FLUOROBIPHENYL	77	81		43 - 116
D14-P-TERPHENYL	84	85		33 - 141
D5-PHENOL	86	98	*	10 - 94
2-FLUOROPHENOL	76	79		21 - 100
2,4,6-TRIBROMOPHENOL	75	78		10 - 123

QC BATCH ID FOR ICPES	
PREPREP METHOD:	NA
PREP METHOD:	Z3005
ANALYSIS METHOD:	6010
BATCH DATE:	12-16-93
INSTRUMENT ID:	B
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's		Batch QC Samples	
1) B312151-	020	LCS ID: LCS05 121693-1	
2)	-030	LCSD ID: LCSD05121693-1	
3)	-040	MB ID: PBN05121693-1	
4)	-050	MS ID: B312151-070 MS	for 060
5)	-060	MSD ID: B312151-080 MSD	↓
6) ↓	-090	REP ID:	
7)			
8)			
9)			
10)			
11)			
12)			
13)			
14)			
15)			
16)			
17)			
18)			
19)			
20)			

ANALYTES REQUIRED FOR BATCH:

Ag	Al	As	B	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na
X	X	—	—	X	X	X	X	—	X	X	X	X	X	X	—	X

Ni	Pb	Sb	Se	Si	Sn	Ti	Tl	V	Zn
X	—	—	X	—	—	—	—	—	X

ITAS Austin QC Batch Summary for ICP

QC Batch ID	
Leprep Method:	
Prep Method:	3005
Analysis Method:	6010
Batch Date:	12/16/93
Instrument ID:	B
Batch (Set) #:	1

Batch QC Information		
Matrix: WATER	Data Reported to PQL	
Units: MG/L		
		Corr. Fact.
Method Blk ID:	PB05121693-1	1
LCS ID:	LCS05121693-1	1
LCSD ID:	LCSD05121693-1	1
MS Sample ID:	B312151-07D	1
MSD Sample ID:	B312151-08D	1
Rep Sample ID:		0

	Replicate Sample Data				Blank / LCS Batch QC									
Analyte	Original Result for Replicate	Replicate Result	% RPD	Q	Method Blank Result	LCS true Value (mg/L	LCS Conc. Found	LCS % Rec.	Q	LCSD Conc. Found	LCSD % Rec.	Q	% RPD for LCS/LCSD Recoveries	Q
Ag					< 0.010	1	0.9617	96		0.97	97		0.95	
Al					< 0.20	10	10.2	102		10.22	102		0.20	
As					< 0.10	1	1.046	105		1.06	106		1.61	
B					< 0.20	1	0.9738	97		0.99	99		1.77	
Ba					< 0.20	1	0.9872	99		0.99	99		0.14	
Be					< 0.0050	1	0.9767	98		0.99	99		0.89	
Ca					< 5.0	20	20.79	104		21.00	105		1.01	
Cd					< 0.0050	1	0.9664	97		0.98	98		1.13	
Co					< 0.050	1	0.9388	94		0.95	95		1.25	
Cr					< 0.010	1	0.9905	99		1.00	100		0.52	
Cu					< 0.025	1	0.9395	94		0.94	94		0.37	
Fe					< 0.10	10	10.62	106		10.51	105		1.04	
K					< 5.0	20	19.47	97		20.03	100		2.84	
Mg					< 5.0	20	20.23	101		20.32	102		0.44	
Mn					< 0.015	1	0.9468	95		0.95	95		0.60	
Mo					< 0.10	1	0.9549	95		0.97	97		1.20	
Na					< 5.0	20	20.14	101		20.15	101		0.05	
Ni					< 0.040	1	0.946	95		0.95	95		0.87	
Pb					< 0.050	1	0.9492	95		0.96	96		0.90	
Sb					< 0.060	1	1.015	101		1.00	100		1.39	
Se					< 0.10	1	1.001	100		1.03	103		2.86	
Si					< 1.0	10	11.26	113		11.12	111		1.25	
Sn					< 0.10	1	0.9343	93		1.00	100		7.09	
Ti					< 0.10	1	0.9903	99		0.99	99		0.33	
Tl					< 0.20	1	1.055	106		1.03	103		2.20	
V					< 0.050	1	0.9608	96		0.97	97		0.76	
Zn					< 0.020	1	0.9605	96		0.96	96		0.12	

QC Data Reviewed By: [signature] Date/Time: 1/5/94 16:00

Comments:

Qualifiers:
N - LCS % Recovery was outside method limits of 80-120 %.
R - % RPD for LCS/LCSD was outside control limit of 20 %.
* Replicate RPD was outside method control limit of 20 %

ITAS Austin QC Batch Summary for ICP

QC Batch ID	
eprep Method:	
Prep Method:	3005
Analysis Method:	6010
Batch Date:	12/16/93
Instrument ID:	B
Batch (Set) #:	1

Batch QC Information		
Matrix: WATER	Data Reported to PQL	
Units: MG/L		
		Corr. Factor
Method Blk ID:	PB05121693-1	1
LCS ID:	LCS05121693-1	1
LCSD ID:	LCSD05121693-1	1
MS Sample ID:	B312151-07D	1
MSD Sample ID:	B312151-08D	1
Rep Sample ID:		

Spike Sample Data

Analyte	Original Result for MS/MSD	MS Result	MS Spike Added	MS % Rec.	Q	MSD Result	MSD Spike Added	MSD % Rec.	Q	% RPD for MS/MSD Recoveries	Q	% RPD for MS/MSD Result As Replicates	Q
Ag	ND	0.8002	1.00	80		0.7585	1.00	76	N	5.35			
Al	0.9548	10.99	10.00	100		10.14	10.00	92		8.84			
As													
B													
Ba	0.2409	1.104	1.00	86		1.046	1.00	81		6.95			
Be	ND	0.8165	1.00	82		0.7781	1.00	78	N	4.82			
Ca	79.83	104.1	20.00	121	N	98.89	20.00	95		24.05	R		
Cd	ND	0.7886	1.00	79	N	0.761	1.00	76	N	3.56			
Co													
Cr	ND	0.8021	1.00	80		0.76	1.00	76	N	5.39			
Cu	ND	0.7963	1.00	80		0.7555	1.00	76	N	5.26			
Fe	1.139	10.13	10.00	90		9.519	10.00	84		7.03			
K	ND	19.21	20.00	96		18.49	20.00	92		3.82			
Mg	52.03	74.33	20.00	111		70.7	20.00	93		17.72			
Mn	0.0647	0.8518	1.00	79	N	0.8092	1.00	74	N	5.56			
Mo													
Na	42.66	62.51	20.00	99		59.41	20.00	84		16.94			
Ni	ND	0.7694	1.00	77	N	0.7405	1.00	74	N	3.83			
Pb													
Sb													
Se	ND	0.7169	1.00	72	N	0.7211	1.00	72	N	0.58			
Si													
Sn													
Ti													
Tl													
V													
Zn	ND	0.7893	1.00	79	N	0.7496	1.00	75	N	5.16			

Comments: ncm for all N flags.

Qualifiers (Q):

H - Sample concentration was greater than five times the spike level.
N - Spike recovery was outside method control limits of 80-120 %.
R - Percent RPD for MS/MSD recoveries was outside method control limit of 20 %.
D - Sample concentration was greater than five times the spike level.
The RPD was calculated between the MS and MSD results as replicates.

12127

B312151

QC Batch ID

ITAS - AUSTIN EXTRACTABLES QA LOT SUMMARY:

Prep Code/Date: TPHDE / 12/20/93
Test Code/Date: 418.1 / "
Set #: _____ Inst. ID: _____

Type	Lab Sample ID	Result	Percent Recovery	QC limits
Blank	B312151-BLK	<	ND	< Reporting limit
Blank spike	BS	5.5	~~96~~ 97%	70 to 130%
MS	07MS	5.1	90	70 to 130%
MSD	08MSD	5.2	92	70 to 130% RPD: 2.2

This QA Spike Lot applies to the following Samples:

#	Client	Sam # + Fraction	Date of Prep
1	~~B312151~~ Tinker	B312151-02B	12/20/93
2		03B	
3		04B	
4		05B	
5		06B	
6		09B	
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Comments: _____

QC BATCH ID FOR WET CHEM - Test Code: NO2NO2
PREPREP METHOD: —
PREP METHOD: —
ANALYSIS METHOD: 353.2
BATCH DATE: 12-14-93
INSTRUMENT ID: A
SET (BATCH) #: 2

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312151-02C
2	-03C
3	-04C
4	-05C
5	-06C
6	-09C
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID: LCS121493-1
LCSD ID: LCSD121493-1
MB ID: MB121493-1
MS ID: B312151-07C MSD of 06C
MSD ID: ↓ -08C MSD of 07C
REP ID: LCS/LCSD

Batch QC Results

MDL: — PQL: 0.050

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.050	mg/L	DS3	12/14/93 16:29
LCS % Rec	105	% Rec		
LCSD % Rec	101	% Rec		
LCS/LCSD RPD	3.87	% RPD		
MS % Rec	96.0	% Rec		
MSD % Rec	93.6	% Rec		
MS/MSD RPD	2.53	% RPD		
REP RPD	3.87	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: T-P	
PREPREP METHOD:	—
PREP METHOD:	—
ANALYSIS METHOD:	365.4 TKP
BATCH DATE:	1-5/7-94 ddd 1/8/94
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312154-02
2	" -03
3	-04
4	-05
5	-06
6	-09
7	" -10
8	B312151-02
9	" -03
10	" -04
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	LCS010594-1
LCSD ID:	NA
MB ID:	PBW010594-1
MS ID:	B312154-07 MS of 06
MSD ID:	-08 MSD of 06
REP ID:	DUP/DUP

Batch QC Results

MDL: — PQL: 0.10

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.10	MG/L	053	1/7/94 14:15
LCS % Rec	104	% Rec		
LCSD % Rec	NA	% Rec		
LCS/LCSD RPD	NA	% RPD		
MS % Rec	100	% Rec		
MSD % Rec	98	% Rec		
MS/MSD RPD	2.0	% RPD		
REP RPD	3.7	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TP	
PREPREP METHOD:	—
PREP METHOD:	—
ANALYSIS METHOD:	365.4
BATCH DATE:	1-7-94
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1 B312151-05C
2 -06C
3 -07C 09.53 1/ckm
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Batch QC ID's

LCS ID: LCSW010794-1
LCSD ID: —
MB ID: PBW010794-1
MS ID: B312151-07C MS OF 06C
MSD ID: 1 -08C MSD OF 06C
REP ID: NA

Batch QC Results

MDL: — PQL: 0.10

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.10	MG/L	DSB	1/10/94 10:40
LCS % Rec	104	% Rec		
LCSD % Rec	—	% Rec		
LCS/LCSD RPD	—	% RPD		
MS % Rec	99	% Rec		
MSD % Rec	96	% Rec		
MS/MSD RPD	3.1	% RPD		
REP RPD	—	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TKN	
PREPREP METHOD:	—
PREP METHOD:	—
ANALYSIS METHOD:	351.2
BATCH DATE:	1-5-94
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	3312154-02C
2	-03C
3	-04C
4	-05C
5	-06C
6	-09C
7	-10C
8	3312143-01C
9	-02C
10	B312151-02C
11	-03C
12	-04S
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	LCS010594-1
LCSD ID:	NA
MB ID:	PBW 010594-1
MS ID:	3312154-07C MS of 06
MSD ID:	-08C MSD of 06
REP ID:	ICU/ICUDUP

Batch QC Results MDL:_____ PQL:_____

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.25	mg/L	DSB	1/7/94 12:08
LCS % Rec	99	% Rec		
LCSD % Rec	—	% Rec		
LCS/LCSD RPD	—	% RPD		
MS % Rec	93.8	% Rec		
MSD % Rec	94.6	% Rec		
MS/MSD RPD	0.85	% RPD		
REP RPD	0.92	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TKN-N	
PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	351.2
BATCH DATE:	01-07-94
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's	
1	B312151-05C
2	06C
3	09C
4	~~B312198-01C~~
5	~~02C~~
6	~~B312247-01B~~
7	~~B312276-03B~~
8	~~05B~~
9	~~B312322-01D~~
10	~~02D~~
11	~~03D~~
12	~~04D~~
13	~~05H~~
14	
15	
16	
17	
18	
19	
20	

* 1/10

Batch QC ID's	
LCS ID:	ICV 010794-1
LCSD ID:	LCS 010794-1
MB ID:	MB 010794-1
MS ID:	B312151-07C
MSD ID:	B312151-08C
REP ID:	

Batch QC Results MDL: _____ PQL: 0.25

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	ND		DSB	1/10/94 08:44
LCS % Rec	85.0	% Rec		
LCSD % Rec	93.2	% Rec		
LCS/LCSD RPD	—	% RPD		
MS % Rec	92.4	% Rec		
MSD % Rec	93.8	% Rec		
MS/MSD RPD	1.5	% RPD		
REP RPD	—	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: 9066	
PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	9066
BATCH DATE:	12-27-93
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312151-02C
2	03C
3	04C
4	05C
5	06C
6	09C
7	
8	
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18	
19	
20	

Batch QC ID's

LCS ID:	LCS 122193-1
LCSD ID:	LCSD 122793-1
MB ID:	MB 122793-1
MS ID:	B312151-07C
MSD ID:	B312151-08C
REP ID:	B312151-03C

Batch QC Results

MDL: _____ PQL: 0.010

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	ND	mg/L	RSM	1-6-94 17:02
LCS % Rec	93	% Rec		
LCSD % Rec	100	% Rec		
LCS/LCSD RPD	7.2	% RPD		
MS % Rec	90	% Rec		
MSD % Rec	85	% Rec		
MS/MSD RPD	5.7	% RPD		
REP RPD	0	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: ALK-I	
PREPREP METHOD:	NA
PREP METHOD:	NA
ANALYSIS METHOD:	ALK-TO
BATCH DATE:	12-15-93
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's	Batch QC ID's
1 B312169 02C → 06C	LCS ID: 121593-1
2 B312151 02C → 09C	LCSD ID: 121593-2
3 ~~B312145~~	MB ID: NA
4 ~~B312147 01C, 20A~~	MS ID: NA
5 B312154 02C → 10C	MSD ID: NA
6 B312147-01C, 20A	REP ID: B312169, B312151, B312154, ~~B312147~~ JM
7	
8	
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12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC Results MDL: _____ PQL: 10

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0		JAM	12-15-93
LCS % Rec	100	% Rec		
LCSD % Rec	100	% Rec		
LCS/LCSD RPD	NA	% RPD		
MS % Rec		% Rec		
MSD % Rec		% Rec		
MS/MSD RPD	↓	% RPD		
REP RPD	1.24	% RPD	Q	

Comments:

QC BATCH ID FOR WET CHEM - Test Code: SIO2
PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: SiO2
BATCH DATE: 12/29/03
INSTRUMENT ID: A
SET (BATCH) #: 1 B

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312151-02C
2	-03C
3	-04C
4	-05C
5	-06C
6	-09C
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	12/29
17	
18	
19	
20	

Batch QC ID's

LCS ID: LCS12253-1
LCSD ID: LCSD12253-1
MB ID: MB12253-1
MS ID: B312151-07C
MSD ID: B312151-08C
REP ID: LCSD12253-1

Batch QC Results

MDL: _____ PQL: 0.20 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0	mg/L	SAT	12/29
LCS % Rec	90.0	% Rec		
LCSD % Rec	96.6	% Rec		
LCS/LCSD RPD	6.45	% RPD		
MS % Rec	92.8	% Rec		
MSD % Rec	80.8	% Rec		
MS/MSD RPD	13.8	% RPD		
REP RPD	6.45	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TOC

PREPREP METHOD:

PREP METHOD:

ANALYSIS METHOD: TOC

BATCH DATE: 12/20/93

INSTRUMENT ID: A

SET (BATCH) #: 3B

Work Orders/Fractions Associated With Batch

	Lab Sample ID's
1	B312151-02C
2	-03C
3	-04C
4	-05C
5	-06C
6	-09C
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	12/21
17	
18	
19	
20	

Batch QC ID's

LCS ID: LCS 122093-3

LCSD ID: LCSD 122093-3

MB ID: MB 122093-3

MS ID: B312151-07C

MSD ID: B312151-08C

REP ID: B312151-04C

Batch QC Results

MDL: _____ PQL: 1.0

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	D	mg/L	[illegible]	12/20 16:00
LCS % Rec	108	% Rec		
LCSD % Rec	108	% Rec		
LCS/LCSD RPD	0	% RPD		
MS % Rec	114	% Rec		
MSD % Rec	107	% Rec		
MS/MSD RPD	6.33	% RPD		
REP RPD	9.33	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TDS

PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: TDS
BATCH DATE: 12/14/93
INSTRUMENT ID: A
SET (BATCH) #: 1

Work Orders/Fractions Associated With Batch

	Lab Sample ID's
1	B312154-02C
2	03C
3	04C
4	05C
5	06C
6	09C
7	10C
8	B31215 1-02C
9	09C
10	04C
11	05C
12	06C
13	
14	
15	SAT
16	12/20
17	
18	
19	
20	

Batch QC ID's

LCS ID: LCS 121493-1
LCSD ID: LCSD 121493-1
MB ID: NA
MS ID: NA
MSD ID: NA
REP ID: B312154 02C, 08C
B312151 07C, 08C

Batch QC Results

MDL: _____ PQL: 10 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	NA	mg/L	JAM	12/14 9:30
LCS % Rec	100	% Rec		
LCSD % Rec	101	% Rec		
LCS/LCSD RPD	0.995	% RPD		
MS % Rec	NA	% Rec		
MSD % Rec	NA	% Rec		
MS/MSD RPD	NA	% RPD		
REP RPD	02 4.45/4.75 x 100 02 5.05/4.72	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TDS
PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: TDS
BATCH DATE: 12/14 9:30
INSTRUMENT ID: A
SET (BATCH) #: 1

Work Orders/Fractions Associated With Batch

Lab Sample ID's	
1	B312154-02C
2	03C
3	04C
4	05C
5	06C
6	07C
7 (DUP OF 7C)	08C
8	09C
9	10C
10	B312151-09C
11	03C
12	04C
13	05C
14	06C
15	07C
16 (DUP OF 7C)	08C
17	
18	
19	
20	

Batch QC ID's	
LCS ID:	LCS121493-1
LCSD ID:	LCSD121493-1
MB ID:	NA
MS ID:	NA
MSD ID:	NA
REP ID:	B312154-08C B312151-08C

Batch QC Results

MDL: _____ PQL: 10 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	NA	mg/L	SAT for RM	12/14 9:30
LCS % Rec	100	% Rec		
LCSD % Rec	101	% Rec		
LCS/LCSD RPD	.995	% RPD		
MS % Rec	NA	% Rec		
MSD % Rec	NA	% Rec		
MS/MSD RPD	NA	% RPD		
REP RPD	3.16/.323	% RPD	✓	✓

Comments:

QC BATCH ID FOR WET CHEM - Test Code: COD
PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: COD
BATCH DATE: 12/28/93
INSTRUMENT ID: D
SET (BATCH) #: 2

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312151-02C
2	03C
3	04C
4	05C
5	06C
6	09C
7	
8	
9	
10	
11	
12	
13	
14	SAT
15	12/28
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID: LCSD22893-2
LCSD ID: LCSD122893-2
MB ID: MB 22893-2
MS ID: B312151-07C
MSD ID: B312151-08C
REP ID: LCSD120893-2

Batch QC Results

MDL: _____ PQL: 25 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0	mg/L	SAT	12/28 16:00
LCS % Rec	106	% Rec		
LCSD % Rec	~~101~~ 96.4	% Rec		
LCS/LCSD RPD	9.9	% RPD		
MS % Rec	106	% Rec		
MSD % Rec	104	% Rec		
MS/MSD RPD	1.9	% RPD		
REP RPD	9.49	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TSS

PREPREP METHOD:

PREP METHOD:

ANALYSIS METHOD: TSS

BATCH DATE: 12/14/93

INSTRUMENT ID: A

SET (BATCH) #: 1

Work Orders/Fractions Associated With Batch

Lab Sample ID's	
1	B312154-07C
2	08C
3	04C
4	05C
5	06C
6	DUP OF (4) 07C
7	DUP OF (5) 08C
8	09C
9	10C
10	B312151-03C
11	05C
12	03C
13	04C
14	05C
15	06C
16	DUP OF (14) 07C
17	DUP OF (15) 08C
18	
19	SAP 12/20
20	

Batch QC ID's

LCS ID: LCS121493-1

LCSD ID: LCSD121493-1

MB ID: NA

MS ID: |

MSD ID:

REP ID: B312154-07C, 08C *
B312151-07C, 08C

Batch QC Results

MDL: _____ PQL: 10

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	NA	mg/L	JAM	12/14 9:00
LCS % Rec	88.3	% Rec		
LCSD % Rec	93.1	% Rec		
LCS/LCSD RPD	5.31	% RPD		
MS % Rec	NA	% Rec		
MSD % Rec	|	% Rec		
MS/MSD RPD	|	% RPD		
REP RPD		% RPD		

10.0/4.88

Comments: * Were rerun 12/17

B312154 - 10 SAT 07C - 16 mg/L

08C 14 mg/L

LCS/LCSD RPD 14.0

LCS 115% Rec

LCSD 100% Rec

44-8-85

QC BATCH ID FOR WET CHEM - Test Code: cl-IC

PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	cl-IC
BATCH DATE.	12/16/93
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

	Lab Sample ID's
1	B312147-09C
2	-20C
3	B312078-01F
4	B312151-02C
5	-03C
6	-04C
7	-05C
8	-06C
9	-09C
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	121693-1
LCSD ID:	121693-2
MB ID:	121693-1
MS ID:	B 312151-07C
MSD ID:	B312 151-08C
REP ID:	B312151-06C

Batch QC Results

MDL: _____ PQL: 1.0 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	ND	mg/L	RBO	12/16/93 10:25
LCS % Rec	100	% Rec		
LCSD % Rec	99.4	% Rec		
LCS/LCSD RPD	0.60	% RPD		
MS % Rec	98.5	% Rec		
MSD % Rec	97.0	% Rec		
MS/MSD RPD	1.53	% RPD		
REP RPD	~~1.15~~ 7.5	% RPD		

1.15 OK pm 12/27

Comments:

44-8-85

TRJ

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

1/11/94

Dated -> 1f, TL-1

CERTIFICATE OF ANALYSIS

IT CORPORATION
1250 CAPITAL OF TX HWY
BLDG. 3, SUITE 200
AUSTIN, TX 78746-6443
TIM JENNINGS

Date: 01/11/94

Work Order: B3-12-246

This is the Certificate of Analysis for the following samples:

Client Work ID: D.O.5001 409832-003-01
Date Received: 12/18/93
Number of Samples: 8
Sample Type: WATER

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
A1646	B3-12-246-01
A1647	B3-12-246-02
A1648	B3-12-246-03
A1648-MS	B3-12-246-04
A1648-MSD	B3-12-246-05
A1649	B3-12-246-06
LAB BLANK #1	B3-12-246-07
LAB BLANK #1	B3-12-246-08

Reviewed and Approved:

Jon Bartell
Laboratory Director

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

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(512) 892-6684

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1646**
SAMPLE DATE: **12/02/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	1.6	J	5
Methylene chloride	1.6	JB	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	98	88 - 110
BROMOFLUOROBENZENE	96	86 - 115
1,2-DICHLOROETHANE-D4	106	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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(512) 892-6684

409832-003-01 Work Order: B3-12-246

SAMPLE ID: **A1647**
SAMPLE DATE: **12/17/93 10:15:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		260	10	MG/L	12/27/93	EPA310_1
TPH - IR		1.0U	1.0	MG/L	12/28/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		280	25	MG/L	01/10/94	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/18/93	EPA7196
Nitrate and Nitrite		10	0.50	MG/L	01/05/94	EPA353_2
Silica		8.0	2.0	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		150	25	MG/L	01/10/94	EPA300_0
Total Dissolved Solids		1000	10	MG/L	12/22/93	EPA160_1
Total Kjeldahl Nitrogen		0.25U	0.25	MG/L	01/10/94	EPA351_3
Total Organic Carbon		1.7	1.0	MG/L	12/29/93	EPA415_1
Total Suspended Solids		56	20	MG/L	12/22/93	EPA160_2
Total Phosphorus		0.10U	0.10	MG/L	01/10/94	EPA365_3

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
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409832-003-01 Work Order: B3-12-246

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1647**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	50		5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	1.0	J	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	46		5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	99	88 - 110
BROMOFLUOROBENZENE	95	86 - 115
1,2-DICHLOROETHANE-D4	108	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-246

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1647**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **01/05/94**
ANALYSIS DATE: **01/06/94**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	1.1	J	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1647**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	90	35 - 114
2-Fluorobiphenyl	83	43 - 116
Terphenyl-D14	105	33 - 141
Phenol-D5	34	10 - 94
2-Fluorophenol	53	21 - 100
2,4,6-Tribromophenol	86	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Referenced notes for these results:

Sample was originally extracted 12/22/93 and analyzed 12/31/93. The Blank Spike and the Matrix Spike Duplicate were outside acceptance limits. Sample was re-extracted 1/5/94 and reanalyzed 1/6/94. Results are reported from the reanalysis.

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AUSTIN, TX
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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-12-246

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1647**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/28/93
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: 1.00000
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	2.2		0.20
Barium	0.20	U	0.20
Cadmium	0.0050	U	0.0050
Calcium	95		5.0
Chromium	0.052		0.010
Copper	0.025	U	0.025
Iron	1.9		0.10
Magnesium	78		5.0
Manganese	0.040		0.015
Nickel	0.040	U	0.040
Potassium	5.0	U	5.0
Selenium	0.010	U	0.010
Silver	0.010	U	0.010
Sodium	160		5.0
Zinc	0.020	U	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
\+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

IT ANALYTICAL SERVICES
AUSTIN, TX
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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

SAMPLE ID: **A1648**
SAMPLE DATE: **12/17/93 10:30:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		390	10	MG/L	12/27/93	EPA310_1
TPH - IR		0.96U	0.96	MG/L	12/28/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		9.9	5.0	MG/L	01/10/94	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/18/93	EPA7196
Nitrate and Nitrite		5.3	0.50	MG/L	01/05/94	EPA353_2
Silica		11	5.0	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		17	5.0	MG/L	01/10/94	EPA300_0
Total Dissolved Solids		450	10	MG/L	12/22/93	EPA160_1
Total Kjeldahl Nitrogen		0.25U	0.25	MG/L	01/10/94	EPA351_3
Total Organic Carbon		1.0U	1.0	MG/L	12/29/93	EPA415_1
Total Suspended Solids		45	10	MG/L	12/22/93	EPA160_2
Total Phosphorus		0.10U	0.10	MG/L	01/10/94	EPA365_3

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-246

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1648**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	1.5	J	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	10	U	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	99	88 - 110
BROMOFLUOROBENZENE	94	86 - 115
1,2-DICHLOROETHANE-D4	105	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

409832-003-01 Work Order: B3-12-246

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1648**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **01/05/94**
ANALYSIS DATE: **01/06/94**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	1.2	J	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1648**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	69	35 - 114
2-Fluorobiphenyl	66	43 - 116
Terphenyl-D14	78	33 - 141
Phenol-D5	26	10 - 94
2-Fluorophenol	44	21 - 100
2,4,6-Tribromophenol	66	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Referenced notes for these results:

Sample was originally extracted 12/22/93 and analyzed 12/31/93. The Blank Spike and the Matrix Spike Duplicate were outside acceptance limits. Sample was re-extracted 1/5/94 and reanalyzed 1/6/94. Results are reported from the reanalysis.

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1648**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/28/93
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: 1.00000
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	1.5		0.20
Barium	0.56		0.20
Cadmium	0.0050	U	0.0050
Calcium	68		5.0
Chromium	0.021		0.010
Copper	0.025	U	0.025
Iron	1.1		0.10
Magnesium	42		5.0
Manganese	0.016		0.015
Nickel	0.040	U	0.040
Potassium	5.0	U	5.0
Selenium	0.010	U	0.010
Silver	0.010	U	0.010
Sodium	45		5.0
Zinc	0.020	U	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

SAMPLE ID: **A1648-MS**
SAMPLE DATE: **12/17/93 10:30:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric	1	390	10	MG/L	12/27/93	EPA310_1
TPH - IR		87		% REC	12/28/93	EPA418_1
Phenolics		95		% REC	01/06/94	EPA9066
Chloride by Ion Chrom.		93		% REC	01/10/94	EPA300_0
Chemical Oxygen Demand		101		% REC	12/28/93	EPA410_4
Chromium VI		102		% REC	12/18/93	EPA7196
Nitrate and Nitrite		90		% REC	01/05/94	EPA353_2
Silica		126	5.0	% REC	12/29/93	370_1
Sulfate by Ion Chrom.		84		% REC	01/10/94	EPA300_0
Total Dissolved Solids	2	440	10	MG/L	12/22/93	EPA160_1
Total Kjeldahl Nitrogen		100		% REC	01/10/94	EPA351_3
Total Organic Carbon		102		% REC	12/29/93	EPA415_1
Total Suspended Solids	3	47	10	MG/L	12/22/93	EPA160_2
Total Phosphorus		105		% REC	01/10/94	EPA365_3

Referenced notes for these results:

1 Duplicate analysis performed in lieu of a matrix spike.

2 Duplicate analysis performed in lieu of a matrix spike.

3 Duplicate analysis performed in lieu of a matrix spike.

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1648-MS**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	88	Trichloroethene	88
		Benzene	91
		Toluene	100
		Chlorobenzene	100

Surrogates	% Recovery	Limits
TOLUENE-D8	100	88 - 110
BROMOFLUOROBENZENE	97	86 - 115
1,2-DICHLOROETHANE-D4	104	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1648-MS**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **01/05/94**
ANALYSIS DATE: **01/06/94**
DILUTION FACTOR: **2.2**
UNITS: **% REC**

	Result		Result
Phenol	38	Acenaphthene	102
2-Chlorophenol	92	4-Nitrophenol	36
1,4-Dichlorobenzene	85	2,4-Dinitrotoluene	94
N-Nitroso-di-n-propylamine	103	Pentachlorophenol	90
1,2,4-Trichlorobenzene	80	Pyrene	123
4-Chloro-3-methylphenol	94		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	97	35 - 114
2-Fluorobiphenyl	82	43 - 116
Terphenyl-D14	113	33 - 141
Phenol-D5	40	10 - 94
2-Fluorophenol	58	21 - 100
2,4,6-Tribromophenol	90	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Referenced notes for these results:

Sample was originally extracted 12/22/93 and analyzed 12/31/93. The Blank Spike and the Matrix Spike Duplicate were outside acceptance limits. Sample was re-extracted 1/5/94 and reanalyzed 1/6/94. Results are reported from the reanalysis.

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1648-MS**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/28/93
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: 1.00000

UNITS: % REC	Result
Aluminum	101
Barium	97
Cadmium	97
Calcium	109
Chromium	97
Copper	96
Iron	99
Magnesium	104
Manganese	94
Nickel	94
Potassium	111
Selenium	99
Silver	95
Sodium	65
Zinc	96

Data qualifier key:

E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
\+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Referenced notes for these results:

Matrix spike outside control limits due to matrix interference on sodium and calcium analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

SAMPLE ID: **A1648-MSD**
SAMPLE DATE: **12/17/93 10:30:00**
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric	1	390	10	MG/L	12/27/93	EPA310_1
TPH - IR		88		% REC	12/28/93	EPA418_1
Phenolics		87		% REC	01/06/94	EPA9066
Chloride by Ion Chrom.		89		% REC	01/10/94	EPA300_0
Chemical Oxygen Demand		104		% REC	12/28/93	EPA410_4
Chromium VI		98		% REC	12/18/93	EPA7196
Nitrate and Nitrite		91		% REC	01/05/94	EPA353_2
Silica		126	5.0	% REC	12/29/93	370_1
Sulfate by Ion Chrom.		81		% REC	01/10/94	EPA300_0
Total Dissolved Solids	2	440	10	MG/L	12/22/93	EPA160_1
Total Kjeldahl Nitrogen		102		% REC	01/10/94	EPA351_3
Total Organic Carbon		99		% REC	12/29/93	EPA415_1
Total Suspended Solids	3	48	10	MG/L	12/22/93	EPA160_2
Total Phosphorus		104		% REC	01/10/94	EPA365_3

Referenced notes for these results:

1 Duplicate analysis performed in lieu of a matrix spike.

2 Duplicate analysis performed in lieu of a matrix spike.

3 Duplicate analysis performed in lieu of a matrix spike.

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.0.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **A1648-MSD**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: **1.0**
UNITS: **% REC**

	Result		Result
1,1-Dichloroethene	84	Trichloroethene	84
		Benzene	88
		Toluene	96
		Chlorobenzene	97

Surrogates	% Recovery	Limits
TOLUENE-D8	98	88 - 110
BROMOFLUOROBENZENE	93	86 - 115
1,2-DICHLOROETHANE-D4	107	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **A1648-MSD**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **01/05/94**
ANALYSIS DATE: **01/06/94**
DILUTION FACTOR: **2.2**
UNITS: **% REC**

	Result		Result
Phenol	39	Acenaphthene	102
2-Chlorophenol	90	4-Nitrophenol	37
1,4-Dichlorobenzene	91	2,4-Dinitrotoluene	94
N-Nitroso-di-n-propylamine	101	Pentachlorophenol	92
1,2,4-Trichlorobenzene	84	Pyrene	124
4-Chloro-3-methylphenol	97		

Surrogates	% Recovery	Limits
Nitrobenzene-D5	97	35 - 114
2-Fluorobiphenyl	84	43 - 116
Terphenyl-D14	114	33 - 141
Phenol-D5	40	10 - 94
2-Fluorophenol	61	21 - 100
2,4,6-Tribromophenol	92	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Referenced notes for these results:

Sample was originally extracted 12/22/93 and analyzed 12/31/93. The Blank Spike and the Matrix Spike Duplicate were outside acceptance limits. Sample was re-extracted 1/5/94 and reanalyzed 1/6/94. Results are reported from the reanalysis.

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001 409832-003-01 Work Order: B3-12-246

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **A1648-MSD**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/28/93
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: 1.00000

UNITS: % REC	Result
Aluminum	101
Barium	100
Cadmium	98
Calcium	130
Chromium	97
Copper	96
Iron	100
Magnesium	117
Manganese	94
Nickel	95
Potassium	113
Selenium	99
Silver	95
Sodium	77
Zinc	96

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

Referenced notes for these results:

Matrix spike duplicate outside control limits due to matrix interference on sodium and calcium analysis by ICPES. LCS / LCSD results and method Quality Control were acceptable.

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

SAMPLE ID: **A1649**
SAMPLE DATE: **12/17/93 12:00:00**
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
9071/418.1 for TPH		1700	250	MG/KG	12/30/93	EPA9071

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **BTEX - Purge and Trap**
METHOD REFERENCE: **EPA8020**

SAMPLE ID: **A1649**
SAMPLE DATE: **12/17/93**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/23/93**
DILUTION FACTOR: **50**
UNITS: **UG/KG**

	Result	Reporting Limit
Benzene	ND	50
Ethylbenzene	ND	50
Toluene	ND	50
Xylenes (total)	ND	50

Total BTEX concentration: Not Detected

Surrogates	% Recovery
4-Bromofluorobenzene	98

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-246

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **WATER**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
Alkalinity, Titrimetric		10U	10	MG/L	12/27/93	EPA310_1
TPH - IR		1.0U	1.0	MG/L	12/28/93	EPA418_1
Phenolics		0.010U	0.010	MG/L	01/06/94	EPA9066
Chloride by Ion Chrom.		1.0U	1.0	MG/L	01/10/94	EPA300_0
Chemical Oxygen Demand		25U	25	MG/L	12/28/93	EPA410_4
Chromium VI		0.010U	0.010	MG/L	12/18/93	EPA7196
Nitrate and Nitrite		0.050U	0.050	MG/L	01/05/94	EPA353_2
Silica		0.20U	0.20	MG/L	12/29/93	370_1
Sulfate by Ion Chrom.		1.0U	1.0	MG/L	01/10/94	EPA300_0
Total Dissolved Solids		10U	10	MG/L	12/22/93	EPA160_1
Total Kjeldahl Nitrogen		0.25U	0.25	MG/L	01/10/94	EPA351_3
Total Organic Carbon		1.0U	1.0	MG/L	12/29/93	EPA415_1
Total Suspended Solids		10U	10	MG/L	12/22/93	EPA160_2
Total Phosphorus		0.10U	0.10	MG/L	01/10/94	EPA365_3

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

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409832-003-01 Work Order: B3-12-246

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Chloromethane	10	U	10	1,2-Dichloropropane	5	U	5
Bromomethane	10	U	10	trans-1,3-Dichloropropene	5	U	5
Vinyl chloride	10	U	10	Trichloroethene	5	U	5
Chloroethane	10	U	10	Chlorodibromomethane	5	U	5
Methylene chloride	1.0	J	10	1,1,2-Trichloroethane	5	U	5
Acetone	100	U	100	Benzene	5	U	5
Carbon disulfide	5	U	5	cis-1,3-Dichloropropene	5	U	5
1,1-Dichloroethene	5	U	5	2-Chloroethylvinyl ether	10	U	10
1,1-Dichloroethane	5	U	5	Bromoform	5	U	5
trans-1,2-Dichloroethene	5	U	5	2-Hexanone	50	U	50
cis-1,2-Dichloroethene	5	U	5	4-Methyl-2-pentanone	50	U	50
Chloroform	5	U	5	Tetrachloroethene	5	U	5
1,2-Dichloroethane	5	U	5	1,1,2,2-Tetrachloroethane	5	U	5
2-Butanone	100	U	100	Toluene	5	U	5
1,1,1-Trichloroethane	5	U	5	Chlorobenzene	5	U	5
Carbon tetrachloride	5	U	5	Ethylbenzene	5	U	5
Vinyl acetate	10	U	10	Styrene	5	U	5
Dichlorobromomethane	5	U	5	Xylenes, total	5	U	5

Surrogates	% Recovery	Limits
TOLUENE-D8	101	88 - 110
BROMOFLUOROBENZENE	99	86 - 115
1,2-DICHLOROETHANE-D4	100	76 - 114

Data Qualifier Key:

U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

IT ANALYTICAL SERVICES
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409832-003-01 Work Order: B3-12-246

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
EXTRACTION DATE: **01/05/94**
ANALYSIS DATE: **01/06/94**
DILUTION FACTOR: **1.0**
UNITS: **UG/L**

	Result	Qual	Reporting Limit		Result	Qual	Reporting Limit
Phenol	10	U	10	2,6-Dinitrotoluene	10	U	10
bis(2-Chloroethyl)ether	10	U	10	3-Nitroaniline	25	U	25
2-Chlorophenol	10	U	10	Acenaphthene	10	U	10
1,3-Dichlorobenzene	10	U	10	2,4-Dinitrophenol	25	U	25
1,4-Dichlorobenzene	10	U	10	4-Nitrophenol	25	U	25
Benzyl alcohol	10	U	10	Dibenzofuran	10	U	10
1,2-Dichlorobenzene	10	U	10	2,4-Dinitrotoluene	10	U	10
2-Methylphenol	10	U	10	Diethylphthalate	10	U	10
bis(2-Chloroisopropyl)ether	10	U	10	4-Chlorophenyl-phenylether	10	U	10
4-Methylphenol	10	U	10	Fluorene	10	U	10
N-Nitroso-di-n-propylamine	10	U	10	4-Nitroaniline	10	U	10
Hexachloroethane	10	U	10	4,6-Dinitro-2-methylphenol	25	U	25
Nitrobenzene	10	U	10	N-Nitrosodiphenylamine (1)	10	U	10
Isophorone	10	U	10	4-Bromophenyl-phenylether	10	U	10
2-Nitrophenol	10	U	10	Hexachlorobenzene	10	U	10
2,4-Dimethylphenol	10	U	10	Pentachlorophenol	25	U	25
Benzoic Acid	10	U	10	Phenanthrene	10	U	10
bis(2-Chloroethoxy)methane	10	U	10	Anthracene	10	U	10
2,4-Dichlorophenol	10	U	10	Di-n-butylphthalate	10	U	10
1,2,4-Trichlorobenzene	10	U	10	Fluoranthene	10	U	10
Naphthalene	10	U	10	Pyrene	10	U	10
4-Chloroaniline	10	U	10	Butylbenzylphthalate	10	U	10
Hexachlorobutadiene	10	U	10	3,3'-Dichlorobenzidine	10	U	10
4-Chloro-3-methylphenol	10	U	10	Benzo(a)anthracene	10	U	10
2-Methylnaphthalene	10	U	10	Chrysene	10	U	10
Hexachlorocyclopentadiene	10	U	10	bis(2-Ethylhexyl)phthalate	10	U	10
2,4,6-Trichlorophenol	10	U	10	Di-n-octylphthalate	10	U	10
2,4,5-Trichlorophenol	10	U	10	Benzo(b)fluoranthene	10	U	10
2-Chloronaphthalene	10	U	10	Benzo(k)fluoranthene	10	U	10
2-Nitroaniline	25	U	25	Benzo(a)pyrene	10	U	10
Dimethylphthalate	10	U	10	Indeno(1,2,3-cd)pyrene	10	U	10
Acenaphthylene	10	U	10	Dibenzo(a,h)anthracene	10	U	10
				Benzo(g,h,i)perylene	10	U	10

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **ABN HSL GC/MS Extractables**
METHOD REFERENCE: **EPA8270**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**

Surrogates	% Recovery	Limits
Nitrobenzene-D5	80	35 - 114
2-Fluorobiphenyl	75	43 - 116
Terphenyl-D14	103	33 - 141
Phenol-D5	32	10 - 94
2-Fluorophenol	58	21 - 100
2,4,6-Tribromophenol	82	10 - 123

(1) N-Nitrosodiphenylamine cannot be separated from diphenylamine.

Data Qualifier Key:
U - none detected
J - estimated value (less than the sample quantitation limit)
B - analyte is found in the associated blank as well as in the sample 'blank' - positive result
* - Surrogate recovery is outside QC limit
D - compound identified at a secondary dilution factor
E - concentration exceeds calibration range

Referenced notes for these results:

Sample was originally extracted 12/22/93 and analyzed 12/31/93. The Blank Spike and the Matrix Spike Duplicate were outside acceptance limits. Sample was re-extracted 1/5/94 and reanalyzed 1/6/94. Results are reported from the reanalysis.

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AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **Metals**
METHOD REFERENCE: **EPA6010**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **WATER**
PREP DATE: 12/28/93
ANALYSIS DATE: **12/29/93**
DILUTION FACTOR: 1.0
UNITS: **MG/L**

	Result	Qual	Reporting Limit
Aluminum	0.20	U	0.20
Barium	0.20	U	0.20
Cadmium	0.0050	U	0.0050
Calcium	5.0	U	5.0
Chromium	0.010	U	0.010
Copper	0.0250	U	0.0250
Iron	0.10	U	0.10
Magnesium	5.0	U	5.0
Manganese	0.0150	U	0.0150
Nickel	0.040	U	0.040
Potassium	5.0	U	5.0
Selenium	0.010	U	0.010
Silver	0.010	U	0.010
Sodium	5.0	U	5.0
Zinc	0.020	U	0.020

Data qualifier key:
E - estimated value (see cover page)
M - duplicate injection precision not met
N - spike recovery not within control limits
S - determined by MSA
W - post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is <50% of spike absorbance
* - duplicate analysis outside control limits
+ - Correlation coefficient for the MSA <0.995
B - < CRDL but >= IDL
U - none detected
'blank' - positive result

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE:
SAMPLE MATRIX: **SOIL**

Test Name	Note Ref	Result	Reporting Limit	Units	Date Analyzed	Method Reference
9071/418.1 for TPH		10U	10	MG/KG	12/30/93	EPA9071

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AUSTIN, TX
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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME: **BTEX - Purge and Trap**
METHOD REFERENCE: **EPA8020**

SAMPLE ID: **LAB BLANK #1**
SAMPLE DATE: **not spec**
SAMPLE MATRIX: **SOIL**
ANALYSIS DATE: **12/22/93**
DILUTION FACTOR: **1.0**
UNITS: **UG/KG**

	Result	Reporting Limit
Benzene	ND	1
Ethylbenzene	ND	1
Toluene	ND	1
Xylenes (total)	ND	1

Total BTEX concentration: Not Detected

Surrogates	% Recovery
4-Bromofluorobenzene	88

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **Alkalinity, Titrimetric** TEST CODE **310_1**

Alkalinity	EPA 310.1 - Chemical Analysis of Water and Wastewater. Titrimetric with sulfuric acid.

TEST NAME **TPH - IR** TEST CODE **418_1**

418_1	Method 418.1: Total Recoverable Petroleum Hydorcarbons, infrared spectrophotmetric method. Methods for the chemical analysis of water and wastes. USEPA.

TEST NAME **ICP Metals** TEST CODE **6010**

Metals by ICP	Inductively coupled emission spectroscopy according to Method 6010, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846, Third Edition.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240TK**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

TEST NAME **ABN HSL GC/MS Extractables** TEST CODE **8270TK**

Hazardous Substance List Extractables	Method 8270, SW-846, Test Methods for Evaluating Solid Waste, Third Edition. Acid/Base-Neutral extraction followed by GC/MS analysis.

TEST NAME **Phenolics** TEST CODE **9066**

Phenolics	SW-846 Method 9066. Total Recoverable Phenolics. Colorimetric, Automated 4-AAP with Distillation. Equivalent to EPA Method 420.2.

TEST NAME **9071/418.1 for TPH** TEST CODE **9071IR**

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Date: 01/11/94
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TEST NAME **9071/418.1 for TPH** TEST CODE **9071IR**

9071 Prep and IR Analysis	Method 9071, SW846, Test Methods for Evaluating Solid Waste, Third Edition. Soxhlet extraction from Method 9071 using freon and infrared analysis of the extract using Method 418.1.

TEST NAME **Arsenic - Graphite Furnace** TEST CODE **AS_GF**

Arsenic Graphite Furnace	Method 7060, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 206.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-055, December 1982.

TEST NAME **BTEX - Purge and Trap** TEST CODE **BTEX**

BTEX	Method 8020, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. This technique uses a purge and trap with gas chromatography (GC) and photo ionization detection (PID) with a five point curve. This method exceeds the requirement of Method 602. Prep method is 5030.

TEST NAME **Chloride by Ion Chrom.** TEST CODE **CL_IC**

Chloride	USEPA 300.0 - The determination of inorganic anions in water by ion chromatography.

TEST NAME **Chemical Oxygen Demand** TEST CODE **COD**

COD	EPA 410.4 - Chemical Analysis of Water and Wastewater. Colorimetric analysis for Chemical Oxygen Demand.

TEST NAME **Chromium VI** TEST CODE **CR_VI**

Chromium VI	Method 7196, SW-846, Test Methods for Evaluating Solid

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TEST NAME **Chromium VI** TEST CODE **CR_VI**

Wastes, Third Edition. Colorimetric analysis. Equivalent to Standard Methods 3500-Cr D.

TEST NAME **Mercury** TEST CODE **HG_AA**

Mercury	Method 7471, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Cold vapor atomic absorption. Method 7470 is used for water. Method 245.5-"Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Metals** TEST CODE **ICPTK4**

Method not available.

TEST NAME **Nitrate and Nitrite** TEST CODE **NO3NO2**

Nitrate + Nitrite	Method 353.2-Chemical Analysis of Water and Wastewater. Colorimetric Automated Cadmium Reduction method using Lachat autoanalyzer for NO3 and NO2 as N.

TEST NAME **Lead - Graphite Furnace** TEST CODE **PB_GF**

Lead Graphite Furnace	EPA 7421, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. EPA 239.2-Technical Additions to Methods for Chemical Analysis of Water and Wastes," EPA-600/4-82-055, December 1982.

TEST NAME **Silica** TEST CODE **SIO2**

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME **Silica** TEST CODE **SIO2**

Silica	Method 370.1-Chemical Analysis of Water and Wastewater. Colorimetric Analysis. This is equal to ASTM D859B.

TEST NAME **Sulfate by Ion Chrom.** TEST CODE **SO4_IC**

Sulfate	USEPA Method 300.0 - The Determination of Inorganic Anions in Water by Ion Chromatography.

TEST NAME **Total Dissolved Solids** TEST CODE **TDS**

Total Dissolved Solids	Method 160.1-Chemical Analysis of Water and Wastewater. Gravimetric analysis.

TEST NAME **Total Kjeldahl Nitrogen** TEST CODE **TKN_N**

Kjeldahl Nitrogen	Method 351.3-Chemical Analysis of Water and Wastewater. Digestion and colorimetric analysis.

TEST NAME **Total Organic Carbon** TEST CODE **TOC**

Total Organic Carbon	Method 415.1-Chemical Analysis of Water and Wastewater. Chemical oxidation and nondispersive infrared analysis. Equivalent to SW-846 Method 9060. Sample prep is instrument manufacturer specific.

TEST NAME **Total Suspended Solids** TEST CODE **TSS**

Total Suspended Solids	Method 160.2-Chemical Analysis of Water and Wastewater. Filtration and gravimetric analysis of non-filterable residue.

TEST NAME **Total Phosphorus** TEST CODE **T_P**

Total Phosphorus	Method 365.3-Chemical Analysis of Water and Wastewater.

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Company: IT CORPORATION
Date: 01/11/94
Client Work ID: D.O.5001

409832-003-01 Work Order: B3-12-246

TEST NAME **Total Phosphorus** TEST CODE **T_P**

Digestion and colorimetric analysis.

TEST NAME **ICPES Digestion - Water** TEST CODE **Z3005**

Water Digestion	Method 3005A, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Digestion procedure for the preparation of surface and ground water samples for analysis by flame atomic absorption spectroscopy and inductively coupled plasma spectroscopy. The procedure determines total recoverable or dissolved metals.

TEST NAME **GFAA Digestion - Water** TEST CODE **Z3020**

Water Digestion	Method 3020, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. Acid digestion technique for Graphite Furnace.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

B312276

Reference Document No. 423305

Page 1 of 2

Project Name/No.[1] Tinker-5001 409832-03-01

Sample Team Members[2] K KIRSCHENMANN M-WILSON

Profit Center No.[3] 3527

Project Manager[4] Jimmy Taylor

Purchase Order No.[6] 409832-03

Required Report Date[11] Normal

Samples Shipment Date[7] 12-17-93

Lab Destination[8] ITAS AUSTIN

Lab Contact[9] KARMEN DEANE

Project Contact/Phone[12] D. McGregor 405-736-2260

Carrier/Waybill No.[13] FedEx 8460755892

Bill to:[5] 409832.03.01 D.O. 5001

Report to:[10] Tim Jennings IT-AUSTIN

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Pre-servative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
A1646	Trip Blank	12-2-93 1700	clear glass	40ml	HCl	8240	Good IC seals & 2C 12-18-93	B32910201 DC
A1647	Water	12-17-93 1015	Amber glass	2	COOL	8270		
			"	1l	H_2SO_4	TRPH - 418.1		
				500ml	H_2SO_4	9066 - phenols		
				250 ml	H_2SO_4	410.4, 415.1		
			↓	250 ml	H_2SO_4	351.3, 353.2		
			Poly	1l	COOL	Standard Groundwater		
		↓	↓	500ml	HNO_3	Metals	↓	

Special Instructions:[23]

Possible Hazard Identification:[24] Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal:[25] Return to Client ☐ Disposal by Lab ☒ Archive (mos.)

Turnaround Time Required:[26] Normal ☒ Rush ☐

QC Level:[27] I ☒ II ☐ III ☐ Project Specific (specify):

1. Relinquished by[28] (Signature/Affiliation)	Date: 12-17-93 Time: 1800	1. Received by[28] (Signature/Affiliation) IT	Date: 12/18/93 Time: 0930
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date. Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments:[29]

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions

MCA 115.91

B312246

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 423305

Project Name TINKER-5001 Project No. 408832-03.01 Samples Shipment Date 12-17-93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
A1647	Water	12-17-93 1045	Poly	125ml	COOL	Cr^{6+}	Gud 1°C see RVR# 8DC12 18-43	
↓		↓	clear glass	40ml	HCl	8240		B324020B B324100A
A1648		12-17-93 1020	clear glass	40ml	HCl	8240		rec'd 4 vials
			Amber glass		COOL	8270		
				1l	H_2SO_4	418.1		
				500ml	H_2SO_4	9066		
				250ml	H_2SO_4	410.4, 415.1		
			↓	250ml	H_2SO_4	357.3, 353.2		
			Poly	1l	COOL	SGW		
			↓	500ml	HNO_3	metals		
	↓	↓	↓	125ml	COOL	Cr^{6+}		
A1649	Soil	12-17-93 1200	clear glass	125ml	COOL	8240-BTEX		
↓	↓	↓	↓	↓	↓	418.1-TRPH	↓	

White: To accompany samples Yellow: Field copy

*See back of form for special instructions

MCA 3.15.91

Auxiliary Data Summary 01/11/94

Work order : B312246 Sample ID : A1647

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
02B						
	418_1	B312246-07B	1222TPHIR1	12/22/93	12/28/93	1.0
02C	310_1	B312246-07C	1227310_11	12/27/93	12/27/93	1.0
	9066	B312246-07C	122790663	12/27/93	01/06/94	1.0
	CL_IC	B312246-07C	0110CL_IC1	01/10/94	01/10/94	25.0
	COD	B312246-07C	1228COD2D	12/28/93	12/28/93	1.0
	CR_VI	B312246-07C	1218CR_VI1	12/18/93	12/18/93	1.0
	NO3NO2	B312246-07C	0105NO3NO2	01/05/94	01/05/94	10.0
	SIO2	B312246-07C	1229SIO22	12/29/93	12/29/93	10.0
	SO4_IC	B312246-07C	110SO4_IC	01/10/94	01/10/94	25.0
	TDS	B312246-07C	1222TDS1	12/22/93	12/22/93	1.0
	TKN_N	B312246-07C	0108TKN_N1	01/08/94	01/10/94	1.0
	TOC	B312246-07C	1229TOC1	12/29/93	12/29/93	1.0
	TSS	B312246-07C	1222TSS1	12/29/93	12/22/93	2.0
	T_P	B312246-07C	0108T_P1	01/08/94	01/10/94	1.0
02D						
	AS_GF	B312246-07D	122830202	12/28/93	01/07/94	1.0
	HG_AA	B312246-07D	1229HG_AA2	12/29/93	12/29/93	1.0
	PB_GF	B312246-07D	122830202	12/28/93	12/31/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312246 Sample ID : A1648

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
03B						
	418_1	B312246-07B	1222TPHIR1	12/22/93	12/28/93	1.0
03C	310_1	B312246-07C	1227310_11	12/27/93	12/27/93	1.0
	9066	B312246-07C	122790663	12/27/93	01/06/94	1.0
	CL_IC	B312246-07C	0110CL_IC1	01/10/94	01/10/94	5.0
	COD	B312246-07C	1228COD2D	12/28/93	12/28/93	1.0
	CR_VI	B312246-07C	1218CR_VI1	12/18/93	12/18/93	1.0
	NO3NO2	B312246-07C	0105NO3NO2	01/05/94	01/05/94	10.0
	SIO2	B312246-07C	1229SIO22	12/29/93	12/29/93	25.0
	SO4_IC	B312246-07C	0110SO4_IC	01/10/94	01/10/94	5.0
	TDS	B312246-07C	1222TDS1	12/22/93	12/22/93	1.0
	TKN_N	B312246-07C	0108TKN_N1	01/08/94	01/10/94	1.0
	TOC	B312246-07C	1229TOC1	12/29/93	12/29/93	1.0
	TSS	B312246-07C	1222TSS1	12/29/93	12/22/93	1.0
	T_P	B312246-07C	0108T_P1	01/08/94	01/10/94	1.0
03D						
	AS_GF	B312246-07D	122830202	12/28/93	01/07/94	1.0
	HG_AA	B312246-07D	1229HG_AA2	12/29/93	12/29/93	1.0
	PB_GF	B312246-07D	122830202	12/28/93	12/31/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312246 Sample ID : A1648-MS

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
04B						
	418_1	B312246-07B	1222TPHIR1	12/22/93	12/28/93	1.0
04C	310_1	B312246-07C	1227310_11	12/27/93	12/27/93	1.0
	9066	B312246-07C	122790663	12/27/93	01/06/94	1.0
	CL_IC	B312246-07C	0110CL_IC1	01/10/94	01/10/94	5.0
	COD	B312246-07C	1228COD2D	12/28/93	12/28/93	1.0
	CR_VI	B312246-07C	1218CR_VI1	12/18/93	12/18/93	1.0
	NO3NO2	B312246-07C	0105NO3NO2	01/05/94	01/05/94	10.0
	SIO2	B312246-07C	1229SIO22	12/29/93	12/29/93	25.0
	SO4_IC	B312246-07C	0110SO4_IC	01/10/94	01/10/94	5.0
	TDS	B312246-07C	1222TDS1	12/22/93	12/22/93	1.0
	TKN_N	B312246-07C	0108TKN_N1	01/08/94	01/10/94	1.0
	TOC	B312246-07C	1229TOC1	12/29/93	12/29/93	1.0
	TSS	B312246-07C	1222TSS1	12/29/93	12/22/93	1.0
	T_P	B312246-07C	0108T_P1	01/08/94	01/10/94	1.0
04D						
	AS_GF	B312246-07D	122830202	12/28/93	01/07/94	1.0
	HG_AA	B312246-07D	1229HG_AA2	12/29/93	12/29/93	1.0
	PB_GF	B312246-07D	122830202	12/28/93	12/31/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312246 Sample ID : A1648-MSD

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
05B						
	418_1	B312246-07B	1222TPHIR1	12/22/93	12/28/93	1.0
05C	310_1	B312246-07C	1227310_11	12/27/93	12/27/93	1.0
	9066	B312246-07C	122790663	12/27/93	01/06/94	1.0
	CL_IC	B312246-07C	0110CL_IC1	01/10/94	01/10/94	5.0
	COD	B312246-07C	1228COD2D	12/28/93	12/28/93	1.0
	CR_VI	B312246-07C	1218CR_VI1	12/18/93	12/18/93	1.0
	NO3NO2	B312246-07C	0105NO3NO2	01/05/94	01/05/94	10.0
	SIO2	B312246-07C	1229SIO22	12/29/93	12/29/93	25.0
	SO4_IC	B312246-07C	0110SO4_IC	01/10/94	01/10/94	5.0
	TDS	B312246-07C	1222TDS1	12/22/93	12/22/93	1.0
	TKN_N	B312246-07C	0108TKN_N1	01/08/94	01/10/94	1.0
	TOC	B312246-07C	1229TOC1	12/29/93	12/29/93	1.0
	TSS	B312246-07C	1222TSS1	12/29/93	12/22/93	1.0
	T_P	B312246-07C	0108T_P1	01/08/94	01/10/94	1.0
05D						
	AS_GF	B312246-07D	122830202	12/28/93	01/07/94	1.0
	HG_AA	B312246-07D	1229HG_AA2	12/29/93	12/29/93	1.0
	PB_GF	B312246-07D	122830202	12/28/93	12/31/93	1.0

Auxiliary Data Summary 01/11/94

Work order : B312246 Sample ID : LAB BLANK #1

FRAC	Tests	Blank Reference	Batch ID	Prep Date	Analysis Date	Dil. Factor
07B						
	418_1	B312246-07B	1222TPHIR1	12/22/93	12/28/93	1.0
07C	310_1	B312246-07C	1227310_11	12/27/93	12/27/93	1.0
	9066	B312246-07C	122790663	12/27/93	01/06/94	1.0
	CL_IC	B312246-07C	0110CL_IC1	01/10/94	01/10/94	1.0
	COD	B312246-07C	1228COD2D	12/28/93	12/28/93	1.0
	CR_VI	B312246-07C	1218CR_VI1	12/18/93	12/18/93	1.0
	NO3NO2	B312246-07C	0105NO3NO2	01/05/94	01/05/94	1.0
	SIO2	B312246-07C	1229SIO22	12/29/93	12/29/93	1.0
	SO4_IC	B312246-07C	0110SO4_IC	01/10/94	01/10/94	1.0
	TDS	B312246-07C	1222TDS1	12/22/93	12/22/93	1.0
	TKN_N	B312246-07C	0108TKN_N1	01/08/94	01/10/94	1.0
	TOC	B312246-07C	1229TOC1	12/29/93	12/29/93	1.0
	TSS	B312246-07C	1222TSS1	12/29/93	12/22/93	1.0
	T_P	B312246-07C	0108T_P1	01/08/94	01/10/94	1.0
07D						
	AS_GF	B312246-07D	122830202	12/28/93	01/07/94	1.0
	HG_AA	B312246-07D	1229HG_AA2	12/29/93	12/29/93	1.0
	PB_GF	B312246-07D	122830202	12/28/93	12/31/93	1.0

TINKER_5001

WORK ORDER # B312246

OF WATER SAMPLES 8

OF SOIL SAMPLES

8240	✓✓	SIO2	✓✓
8270	✓✓ 2B 3B	TDS	✓✓
IR	✓✓	[redacted]	✓✓
AS	✓✓	TOC	✓✓
CRIV	✓✓	TSS	✓✓
HG	✓✓	T_P	✓✓
ICP	✓✓	BTEX	✓✓
PB	✓✓		
SO4_IC	✓✓		
310_1	✓✓		
9066	✓✓		
CL_IC	✓✓		
COD	✓✓		
NO3NO2	✓✓		

APPENDIX A

DEFINITIONS

ND(U)	-	Analyte was analyzed for, but not detected. The value given after the ND or "U" is the detection limit for that compound.
A	-	The compound denoted with an "A" indicates a suspected aldol condensation product.
B	-	Indicates the compound was also detected in the blank, but at levels less than 5X the detection limit. Values for this compound may be suspect.
J	-	Indicates the compound was detected in the sample, but at levels less than the detection limit, but above the MDL. Results should be reguarded as estimated.
D	-	Indicates that the compound was identified in an analysis at a secondary dilution factor.
N	-	Indicates presumptive evidence of a compound. This flag is used for tentatively identified compounds.

MS - Matrix Spike

MSD - Matrix Spike Duplicate

RPD - Relative Percent Difference

DL - Detection limit

UG/L - Micrograms/Liter

UG/KG - Micrograms/Kilogram

MG/KG - Milligrams/Kilogram

MG/L - Milligrams/Liter

%REC - Percent Recovery

QC Acceptance Limits

Method 8240	Water	Soil
Surrogate % Recoveries		
BFB	86-115	74-121
Dichloroethane	76-114	70-120
Toluene-d8	88-110	81-117
Matrix Spike Limits(%)		
1,1-Dichloroethene	61-145	59-172
Trichloroethene	71-120	62-137
Benzne	76-127	66-142
Toluene	76-125	59-139
Chlorobenzene	75-130	60-133

Method 8270	Water	Soil
Surrogate % Recoveries		
Nitrobenzene-d5	35 - 114	23 - 1
2-Fluorobiphenyl	43 - 116	30 - 1
Terphenyl-d14	33 - 141	18 - 1
Phenol-d5	10 - 94	24 - 1
2-Fluorophenol	21 - 100	25 - 1
2,4,6-Tribromophenol	10 - 123	19 - 1
Matrix Spike Limits(%)		
Phenol	14 - 99	15 - 1
Chlorophenol	19 - 107	20 - 1
1,4-Dichlorobenzene	18 - 101	17 - 1
N-Nitroso-di-propylamine	32 - 108	30 - 1
1,2,4-Trichlorobenzene	24 - 109	21 - 1
4-Chloro-3-methylphenol	31 - 111	34 - 1
Acenaphthene	33 - 110	30 - 1
4-Nitrophenol	1 - 141	d - 1
2,4-Dinitrotoluene	35 - 106	31 - 1
Pentachlorophenol	1 - 147	2 - 1
Pyrene	42 - 119	36 - 1

METALS CONTROL LIMITS

ICP: ± 20% for MS/MSD & Duplicate

GF: Control Charts for MS/MSD; ± 20% for Dup

ICV/CCV

GF ICV ± 20%
GF CCV ± 20%
ICP ICV/CCV ± 10%
HG AA ± 20%

CONTROL LIMITS
GRAPHITE FURNACE/MERCURY

ANALYTE	MATRIX	LIMITS	COMMENTS
Hg	water	21 - 170	Control Charts (B inst.)
Hg	soil	44 - 150	Control Charts (B)
As	water	59 - 150	D
As	soil	75 - 125	D
As	water	52 - 140	C
As	soil	35 - 142	C
Pb	water	48 - 153	D
Pb	soil	75 - 125	D
Pb	water	33 - 163	C
Pb	soil	75 - 125	C
Se	water	37 - 136	D
Se	soil	27 - 118	D
Se	water	20 - 147	C
Se	soil	2.6 - 139	C

QC BATCH ID FOR WET CHEM - Test Code: TDS

PREPREP METHOD:

PREP METHOD:

ANALYSIS METHOD: TDS

BATCH DATE: 12/22/93

INSTRUMENT ID: A

SET (BATCH) #: 1

Work Orders/Fractions Associated With Batch

	Lab Sample ID's	Batch QC ID's
1	B312246-02C	LCS ID: LCS122293-1
2	03C	LCSD ID: NA
3	Dup of 04C	MB ID:
4	03C 05C	MS ID:
5	B312247-01D	MSD ID:
6	B312263-01A	REP ID: B312246-04C
7	02A	B312246-05C
8	B312276-03D	
9	- 05D	
10		
11		
12		
13		
14		
15	SAT	
16	SAT	
17	12/27	
18	12/27	
19		
20		

Batch QC Results MDL: _____ PQL: 10

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	NA	mg/L	SAT	12/22 10:00
LCS % Rec	95.4	% Rec		
LCSD % Rec	NA	% Rec		
LCS/LCSD RPD		% RPD		
MS % Rec		% Rec		
MSD % Rec		% Rec		
MS/MSD RPD		% RPD		
REP RPD	1.58/2.27	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: ~~TDS~~ TSS

PREPREP METHOD:

PREP METHOD:

ANALYSIS METHOD: TSS

BATCH DATE: 12/22/93

INSTRUMENT ID: A

SET (BATCH) #: 1

Work Orders/Fractions Associated With Batch

Lab Sample ID's	Batch QC ID's
1 B31246-02C	LCS ID: LCS12293-1
2 03C	LCSD ID: NA
3 dupe of 04C	MB ID: NA
4 03C (05C	MS ID: NA
5	MSD ID: NA
6	REP ID: B31246-04C
7	B31246-05C
8	
9	
10	
11	
12	
13	
14	
15	
16 12/27	
17	
18	
19	
20	

Batch QC Results MDL: _____ PQL: 10mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	NA	mg/L	~~SAT~~	12/22 10:00
LCS % Rec	95.5	% Rec		
LCSD % Rec	NA	% Rec		
LCS/LCSD RPD:		% RPD		
MS % Rec		% Rec		
MSD % Rec		% Rec		
MS/MSD RPD		% RPD		
REP RPD	4.35/6.45	% RPD		

Comments:

Hg-1A 12/07/93
MLA

QC BATCH ID FOR GFAA/CVAA - Test Code:	
PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	7470
BATCH DATE:	12/29/93
INSTRUMENT ID:	A
SET (BATCH) #:	1 (2)

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312214-01B
2	02B
3	03B
4	04B
5	05B
6	06B
7	07B
8	08B
9	09B
10	11B
11	12B
12	13B
13	14B
14	B312246-02D
15	03D
16	04D
17	05D
18	
19	MLA 12/09
20	

Batch QC ID's

LCS ID:	ICV 122993-1	
LCSD ID:	CCV-1	
MB ID:	ICB	
MS ID:	B312246-04D	MS
MSD ID:	05D	MSD
REP ID:	03D	DUP

Batch QC Results

MDL: 0.020 PQL: 0.020

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0.0	mg/L	MLA	12/09/9322:00
LCS % Rec	113	% Rec		
LCSD % Rec	120	% Rec		
LCS/LCSD RPD	6.01	% RPD		
MS % Rec 123	~~78.7~~ MLA	% Rec		
MSD % Rec 124	~~83.3~~	% Rec		
MS/MSD RPD 81	~~5.68~~	% RPD		
REP RPD	0	% RPD		

Comments:

QC BATCH ID FOR GFAA/CVAA - Test Code: Pb-CE
PREPREP METHOD:
PREP METHOD: Z3020
ANALYSIS METHOD: 7421
BATCH DATE: 12-28-93
INSTRUMENT ID: C
SET (BATCH) #: 2

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312245-08B
2	B312246-02D
3	↓ -03D
4	B312266-12B
5	
6	
7	
8	
9	
10	
11	
12	DN
13	12-28-93
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	LCS201228-2
LCSD ID:	LCSD201228-2
MB ID:	PB201228-2
MS ID:	B312246-04D MS
MSD ID:	↓ -05D MS
REP ID:	↓ -03D DUP

Batch QC Results

MDL: 2.96 PQL: 0.0030

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.0030		BK	12-31-93 12:28
LCS % Rec	107	% Rec	↓	↓
LCSD % Rec	111	% Rec		
LCS/LCSD RPD	3.67	% RPD		
MS % Rec	96.0	% Rec		
MSD % Rec	96.5	% Rec		
MS/MSD RPD	0.52	% RPD		
REP RPD	0	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TOC
PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: TOC
BATCH DATE: 12/29 12:00
INSTRUMENT ID: A
SET (BATCH) #: 1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1 B312245-08B
2 B312246-02C
3 03C
4 ~~B312247-01B~~
5 B312248-01C
6 B312202-01D
~~7~~ 4 -02D
8 B312203-01D
9 02D
10 B312266-12B
11
12
13
14
15
16 SAT 12/29
17
18
19
20

Batch QC ID's

LCS ID: LCS 122993-1
LCSD ID: LCSD 122993-1
MB ID: MB 122993-1
MS ID: B312246-04C
MSD ID: B312246-05C
REP ID: LCSD 122993-1

Batch QC Results

MDL: _____ PQL: 1.0 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0	mg/L	~~SAT~~	12/29 12:00
LCS % Rec	~~108~~ SAT 101	% Rec		
LCSD % Rec	~~111~~ SAT 100	% Rec		
LCS/LCSD RPD	0.9% ~~2.74~~ SAT	% RPD		
MS % Rec	102	% Rec		
MSD % Rec	99.0	% Rec		
MS/MSD RPD	2.99	% RPD		
REP RPD	2.74	% RPD		

Comments: # B312202-02D WAS REDONE 1/3/94
Result: ND
LCS 1/3/94: ~~108% Rec~~ SAT 102 % Rec
LCSD 1/3/94: ~~111% Rec~~ SAT 103 % Rec
~~2.74% RPD~~ SAT 0.976 RPD

12/29/93

122993C

QC BATCH ID FOR ICPES	
PREPREP METHOD:	N/A
PREP METHOD:	E3[illegible]5
ANALYSIS METHOD:	6010
BATCH DATE:	12-28-93
INSTRUMENT ID:	B
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1)	B312274-01A
2)	02A
3)	03A
4)	04A
5)	B312245-08A
6)	B312246-02D
7)	03D
8)	03D Dup
9)	04D MS
10)	05D MSD
11)	B312247-01C
12)	B312266-12B
13)	B312269-01H
14)	02H
15)	B312270-01H
16)	B312276-03C
17)	05C
18)	B312071-02B
19)	03B
20)	04B

Batch QC Samples

LCS ID:	LCS0S122893-1
LCSD ID:	LCSD0S122893-1
MB ID:	PB0S122893-1
MS ID:	B312246-04D
MSD ID:	B312246-05D
REP ID:	B312246-03D
	PBD0S122893-1

ANALYTES REQUIRED FOR BATCH:

Ag	Al	As	B	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na
X	X	—	—	X	X	X	X	—	X	X	X	X	X	X	—	X

Ni	Pb	Sb	Se	Si	Sn	Ti	Tl	V	Zn
X	X	X	X	—	—	—	—	—	X

ITAS Austin QC Batch Summary for ICP

QC Batch ID	
Preprep Method:	
Prep Method:	3005
Analysis Method:	6010
Batch Date:	12/28/93
Instrument ID:	B
Batch (Set) #:	1

Batch QC Information		
Matrix: WATER	Data Reported to PQL	
Units: MG/L		
		Corr. Fact.
Method Blk ID:	PB05122893-1	1
LCS ID:	LCS05122893-1	1
LCSD ID:	LCSD05122893-1	1
MS Sample ID:	B312246-04D MS	1
MSD Sample ID:	B312246-05D MSD	1
Rep Sample ID:	B312246-03D DUP	1

	Replicate Sample Data				Blank / LCS Batch QC								
Analyte	Original Result for Replicate	Replicate Result	% RPD	Q	Method Blank Result	LCS true Value (mg/L	LCS Conc. Found	LCS % Rec.	Q	LCSD Conc. Found	LCSD % Rec.	Q	% RPD for LCS/LCSD Recoveries	Q
Ag	ND	ND	N/A		< 0.010	1	0.9358	94		0.94	94		0.30	
Al	1.469	1.391	5.45		< 0.20	10	10.15	102		10.17	102		0.20	
As					< 0.10	1	1.04	104		1.06	106		1.53	
B					< 0.20	1	0.9016	90		0.92	92		2.02	
Ba	0.5558	0.5674	2.07		< 0.20	1	0.993	99		0.99	99		0.72	
Be	ND	ND	N/A		< 0.0050	1	0.9713	97		0.98	98		0.71	
Ca	67.74	69.09	1.97		< 5.0	20	20.3	102		20.41	102		0.54	
Cd	ND	ND	N/A		< 0.0050	1	0.9619	96		0.97	97		0.73	
Co					< 0.050	1	0.9393	94		0.94	94		0.49	
Cr	0.0213	0.019	11.41		< 0.010	1	0.9762	98		0.98	98		0.49	
Cu	ND	ND	N/A		< 0.025	1	0.9408	94		0.94	94		0.12	
Fe	1.085	1.075	0.93		< 0.10	10	10.34	103		10.37	104		0.29	
K	ND	ND	N/A		< 5.0	20	19.64	98		19.50	98		0.72	
Mg	41.56	42.51	2.26		< 5.0	20	20.18	101		20.20	101		0.10	
Mn	0.0156	0.0156	0.00		< 0.015	1	0.9361	94		0.94	94		0.50	
Mo					< 0.10	1	0.9318	93		0.94	94		0.83	
Na	45.23	46.03	1.75		< 5.0	20	20.4	102		20.40	102		0.00	
Ni	ND	ND	N/A		< 0.040	1	0.9269	93		0.94	94		1.20	
Pb	ND	ND	N/A		< 0.050	1	0.9286	93		0.96	96		3.02	
Sb	ND	ND	N/A		< 0.060	1	0.9896	99		1.00	100		0.99	
Se	ND	ND	N/A		< 0.10	1	0.9278	93		0.97	97		4.27	
Si					< 1.0	10	10.04	100		10.23	102		1.87	
Sn					< 0.10	1	0.9643	96		0.93	93		3.75	
Ti					< 0.10	1	0.9902	99		0.99	99		0.29	
Tl					< 0.20	1	0.982	98		1.00	100		1.69	
V					< 0.050	1	0.9406	94		0.94	94		0.38	
Zn	ND	ND	N/A		< 0.020	1	0.9484	95		0.96	96		0.81	

QC Data Reviewed By: KmB Date/Time: 12/29/93 2300

Comments: All QC within control limits

Qualifiers:
N - LCS % Recovery was outside method limits of 80-120 %.
R - % RPD for LCS/LCSD was outside control limit of 20 %.
* Replicate RPD was outside method control limit of 20 %

ITAS Austin QC Batch Summary for ICP

QC Batch ID	
Preprep Method:	
Prep Method:	3005
Analysis Method:	6010
Batch Date:	12/28/93
Instrument ID:	B
Batch (Set) #:	1

Batch QC Information

Matrix: WATER	Data Reported to PQL
Units: MG/L	

		Corr. Factor
Method Blk ID:	PB05122893-1	1
LCS ID:	LCS05122893-1	1
LCSD ID:	LCSD05122893-1	1
MS Sample ID:	B312246-04D MS	1
MSD Sample ID:	B312246-05D MSD	1
Rep Sample ID:	B312246-03D DUP	1

Spike Sample Data

Analyte	Original Result for MS/MSD	MS Result	MS Spike Added	MS % Rec.	Q	MSD Result	MSD Spike Added	MSD % Rec.	Q	% RPD for MS/MSD Recoveries	Q	% RPD for MS/MSD Result As Replicates	Q
Ag	ND	0.9506	1.00	95		0.9509	1.00	95		0.03			
Al	1.469	11.52	10.00	101		11.59	10.00	101		0.69			
As													
B													
Ba	0.5558	1.525	1.00	97		1.556	1.00	100		3.15			
Be	ND	1.004	1.00	100		1.005	1.00	100		0.10			
Ca	67.74	89.59	20.00	109		93.65	20.00	130	N	17.00			
Cd	ND	0.972	1.00	97		0.9758	1.00	98		0.39			
Co													
Cr	0.0213	0.9908	1.00	97		0.9911	1.00	97		0.03			
Cu	ND	0.9565	1.00	96		0.9612	1.00	96		0.49			
Fe	1.085	11.03	10.00	99		11.05	10.00	100		0.20			
K	ND	22.27	20.00	111		22.57	20.00	113		1.34			
Mg	41.56	62.33	20.00	104		64.94	20.00	117		11.82			
Mn	0.0156	0.9508	1.00	94		0.9518	1.00	94		0.11			
Mo													
Na	45.23	58.19	20.00	65	N	60.59	20.00	77	N	16.95			
Ni	ND	0.9421	1.00	94		0.9464	1.00	95		0.46			
Pb	ND	0.9767	1.00	98		0.9653	1.00	97		1.17			
Sb	ND	1.014	1.00	101		1.015	1.00	101		0.10			
Se	ND	0.9859	1.00	99		0.9937	1.00	99		0.79			
Si													
Sn													
Ti													
Tl													
V													
Zn	ND	0.9608	1.00	96		0.9583	1.00	96		0.26			

Comments: % Rec for Na in MS/MSD outside control limits due to matrix interference / inconsistent sample matrix. % Rec for Ca in MSD outside control limit for same reason. All other QC within control limits.

Qualifiers (Q):

H - Sample concentration was greater than five times the spike level.
N - Spike recovery was outside method control limits of 80-120 %.
R - Percent RPD for MS/MSD recoveries was outside method control limit of 20 %.
D - Sample concentration was greater than five times the spike level.
The RPD was calculated between the MS and MSD results as replicates.

Method BTEX Batch QC summary

Analyst	jl	**SAM Number**		**Matrix: Water/Soil**	water
Instrument ID	GCF1	**Client**		**Units**	ug/L
Batch Date	12/22/93	**Method**	BTEX	**Set (Batch)**	#1
Reviewed		**Sample Spiked**	BLK SPIKE	**Comments**	ok

Analyte	**Lab Blank**	**Matrix result**	**Spike amnt MS/MSD**	**Spike amnt BLK SPIKE**	**Blank Spike Result**	**MS result**	**MSD result**	**Blank Spike % Rec**	**MS % Rec**	**MSD % Rec**	**% rpd**	**Accept Limits**
Surr (BFB)	98.28	0.00	100.00	100.00	106.00	103.00	105.00	106%	103%	105%	2%	70-130
Benzene	0.00	0.00	20.80	20.80	19.89	20.55	21.61	96%	99%	104%	5%	70-130
Toluene	0.04	0.04	61.10	61.10	61.81	63.56	67.07	101%	104%	110%	5%	70-130
Ethyl benzene	0.00	0.00	20.70	20.70	20.83	21.57	22.03	101%	104%	106%	2%	70-130
M+P Xylene	0.10	0.10	83.10	83.10	89.00	89.77	95.40	107%	108%	115%	6%	70-130
O-xylene	0.00	0.00	41.40	41.40	43.03	43.63	46.45	104%	105%	112%	6%	70-130
1,2 CL2Benzene	0.00	0.00			0.00	0.00	0.00	#VALUE!	#VALUE!	#VALUE!	#DIV/0!	70-130
1,4 CL2Benzene	0.00	0.00			0.00	0.00	0.00	#VALUE!	#VALUE!	#VALUE!	#DIV/0!	70-130
1,3 CL2 Benzene	0.00	0.00			0.00	0.00	0.00	#VALUE!	#VALUE!	#VALUE!	#DIV/0!	70-130
												70-130

Comment: Insufficient sample was available for matrix and matrix spike evaluation. A blank spike and blank spike duplicate were prepared instead.

THIS QC APPLIES TO THE FOLLOWING SAMPLES:

B312251/05,06
B312267
B312247
B312246
B312278

ACCEPTANCE LIMITS:

LCS:	85-115%
MS/MSD:	70-130%
RPD:	<30%
SURROGATES:	75-125%

ITAS_Austin Volatiles QA Spike Lot Summary LOT#: _____

Date/Time: 12/29/93

Intrument: E1

Operator: SAB

Test/Matrix: 8240/water

GC Column: SD2.2 (Rtx)

Operator: SAB

Type	Lab Sample ID	Lab File ID	Performed (Y or N)
Sample	B312246-03	>E2463	Y
MS	-04	>E2464	
MSD	-05	>E2465	
LCS	-BS	>EBS29	

This QA Spike Lot applies to the following Samples:

#	Client * Sample ID	Lab Sample ID	Lab File ID
01		B312246-01	
02		-02	
03		-03	
04		-04	
05		-05	
06		-07	
07			
08			
09			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Comments: _____

* - Field used only if necessary.

QC Batch ID

Prep Code/Date: _____/_____

Test Code/Date: 8240/12/29/9

Set #: 1 Inst. ID: E

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY AND BLANK SPIKE RECOVERY

Lab Name: ITAS - Austin Date Ran: 12/29/93 QC BATCH ID

Sample Names: >E2464 >E2465 >EBS29 Prep Code/Date:

CLIENT ID: Test Code/Date: 8240 12/29/93

Matrix Spike - SAM Sample No. B312246 Matrix: WATER Set #: 0 Inst.ID: E1

(5.000 ML TO 5 ML) 1.0 X DIL

COMPOUND NAME	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	MS CONC (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.00	.00	44.24	88	61 - 145
Trichloroethene	50.00	1.52	44.13	85	71 - 120
Benzene	50.00	.00	45.25	91	76 - 127
Toluene	50.00	.00	50.02	100	76 - 125
Chlorobenzene	50.00	.00	50.02	100	75 - 130

BLANK CONC (ug/L)	BS CONC (ug/L)	BS % REC #	QC LIMITS REC.
0	43.40	87	61 - 145
0	40.95	82	71 - 120
0	44.35	89	76 - 127
0	48.19	96	76 - 125
0	47.40	95	75 - 130

COMPOUND NAME	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.00	41.84	84	6	14	61 - 145
Trichloroethene	50.00	43.48	84	2	14	71 - 120
Benzene	50.00	43.87	88	3	11	76 - 127
Toluene	50.00	47.88	96	4	13	76 - 125
Chlorobenzene	50.00	48.30	97	3	13	75 - 130

Column to be used to flag recovery and RPD values with an asterisk.

* Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside limits.

SURROGATE RECOVERIES	>E2464	>E2465	>EBS29	LIMITS
Toluene - d8	100	98	101	88 - 110
Bromofluorobenzene	97	93	100	86 - 115
1,2-Dichloroethane - d4	104	107	101	76 - 114

12/27

B312246

QC Batch ID

ITAS - AUSTIN EXTRACTABLES QA LOT SUMMARY:

Prep Code/Date: 418.1 / 12/22/93
Test Code/Date: TPH-IR / 12/22/93
Set #: _____ Inst. ID: FTIR

Type	Lab Sample ID	Result	Percent Recovery	QC limits
Blank	B312246-BLK	<	ND	< Reporting limit
Blank spike	BS	4.8	85	70 to 130%
MS	026MS	9.8	87	70 to 130%
MSD	05MSD	10	88	70 to 130%
				RPD: 1.1%

This QA Spike Lot applies to the following Samples:

#	Client	Sam # + Fraction	Date of Prep
1	Tinker	B312246-02B	12/22/93
2	↓	12B	↓
3		B312245-08B	12/22/93
4	IT Hopper	B312250-05D	
5	↓	06D	↓
6	Tinker	B312246-12B	
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Comments: _____

1435

ITAS - AUSTIN EXTRACTABLES QA LOT SUMMARY:

QC Batch ID

Prep Code/Date: IS-IR / 12/30/93
Test Code/Date: _____ / _____
Set #: _____ Inst. ID: _____

Type	Lab Sample ID	Result	Percent Recovery
Blank	B312306 - BLK	<	ND
Blank spike	BS	5.4	96
MS	08A	310	94
MSD	08A	310	94

QC limits
< Reporting limit
70 to 130%
70 to 130%
70 to 130%

This QA Spike Lot applies to the following Samples:

#	Client	Sam # + Fraction	Date of Prep
1	IT - Hou	B312306 - 01A	12-30-93
2		02A	
3		03A	
4		04A	
5		05A	
6		06A	
7		07A	
8		08A	
9		09A	
10		10A	
11	IT - Slep.	B312297 01A	
12		02A	
13		03A	
14		04A	
15		05A	
16		06A	
17		07A	
18	Tixcor	B312246 - 06B	
19			
20			

Comments: _____

QC BATCH ID FOR WET CHEM - Test Code: NO2NO2/NO3-PR	
PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	353.2
BATCH DATE:	1-5-94
INSTRUMENT ID:	A
SET (BATCH) #:	3

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312246-02C
2	03C
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
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Batch QC ID's

LCS ID:	LCS 010594-1
LCSD ID:	LCSD 010594-1
MB ID:	MB 010594-1
MS ID:	B312246-04C
MSD ID:	B312246-05C
REP ID:	

Batch QC Results

MDL: _____ PQL: 0.05

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	ND	mg/L	DSB	1-5-94 10:35
LCS % Rec	100	% Rec		
LCSD % Rec	98	% Rec		
LCS/LCSD RPD	2.0	% RPD		
MS % Rec	90 ~~110~~	% Rec		
MSD % Rec	91 ~~99~~	% Rec		
MS/MSD RPD	11	% RPD		
REP RPD		% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: 9066	
PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	9066
BATCH DATE:	12-27-93
INSTRUMENT ID:	A
SET (BATCH) #:	3

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312246-02C
2	03C
3	
4	
5	
6	
7	
8	
9	
10	
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12	
13	
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18	
19	
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Batch QC ID's

LCS ID:	LCS 122793-1
LCSD ID:	LCSD 122793-2
MB ID:	MB 122793-2
MS ID:	B312246-04C
MSD ID:	B312246-05C
REP ID:	B312246-02C

Batch QC Results

MDL: _____ PQL: ~~0.04~~ 0.01 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	ND	mg/L	[illegible]	1-6-94 17:02
LCS % Rec		% Rec		
LCSD % Rec		% Rec		
LCS/LCSD RPD		% RPD		
MS % Rec		% Rec		
MSD % Rec		% Rec		
MS/MSD RPD		% RPD		
REP RPD		% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: SO4-IC
PREPREP METHOD: —
PREP METHOD: —
ANALYSIS METHOD: 300.0
BATCH DATE: 1-10-94
INSTRUMENT ID: A
SET (BATCH) #: 1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1 B312246-02 C1
2 -03 C1
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Batch QC ID's

LCS ID: LCS011094-1
LCSD ID: LCSD11094-1
MB ID: ICB 11094-1
MS ID: B312246-04 C1 MS
MSD ID: -05 C1 MSD
REP ID: LCS/LCSD.

Batch QC Results

MDL: — PQL: 1.0

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<1.0	mg/L	BSG	1/11/94 10.00
LCS % Rec	98.8	% Rec		
LCSD % Rec	97.8	% Rec		
LCS/LCSD RPD	1.02	% RPD		
MS % Rec	84.0	% Rec		
MSD % Rec	81.0	% Rec		
MS/MSD RPD	3.64	% RPD		
REP RPD	1.02	% RPD	✓	✓

Comments:

QC BATCH ID FOR WET CHEM - Test Code: Cl-IC	
PREPREP METHOD:	—
PREP METHOD:	—
ANALYSIS METHOD:	300.0
BATCH DATE:	1-10-94
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1 B312246-02C'
2 -03C'
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Batch QC ID's

LCS ID: LCS011094-1
LCSD ID: LCSD011094-1
MB ID: ICB 1/10/94
MS ID: B312246-04C' ms of 03C
MSD ID: " -05C' msd of 03C'
REP ID: LCS/LCSD

Batch QC Results

MDL: — PQL: 1.0 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<1.0	mg/L	BBG	1/10/94 10:00
LCS % Rec	103	% Rec		
LCSD % Rec	103	% Rec		
LCS/LCSD RPD	0	% RPD		
MS % Rec	93.3	% Rec		
MSD % Rec	89.3	% Rec		
MS/MSD RPD	4.38	% RPD		
REP RPD	0	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: TKN-N	
PREPREP METHOD:	
PREP METHOD:	
ANALYSIS METHOD:	351.2
BATCH DATE:	1-8-94
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312198-01C
2	02C
3	B312246-02C
4	03C
5	B312247-01B
6	B312276-03B
7	05B
8	B312327-01D
9	02D
10	03D
11	04D
12	05H
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	ICV 010894-1
LCSD ID:	LCS 010894-1
MB ID:	MB 010894-1
MS ID:	B312246-04C
MSD ID:	B312246-05C
REP ID:	

Batch QC Results

MDL: _____ PQL: 0.25

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	ND	mg/L	DSB	1/10/94 08:44
LCS % Rec	82.0	% Rec		
LCSD % Rec	97.2	% Rec		
LCS/LCSD RPD	—	% RPD		
MS % Rec	100 ~~98.4~~	% Rec		
MSD % Rec	102	% Rec		
MS/MSD RPD	1.98	% RPD		
REP RPD	—	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: T-P	
PREPREP METHOD:	—
PREP METHOD:	—
ANALYSIS METHOD:	365.4
BATCH DATE:	1-8-94
INSTRUMENT ID:	A
SET (BATCH) #:	1

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312246-02C
2	" -03C
3	B312327-01D
4	-02D
5	-03D
6	-04D
7	" -05H
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	LCS010894-1
LCSD ID:	—
MB ID:	PBW010894-1
MS ID:	B312246-04C MS of 03C
MSD ID:	-05C MSD of 03C
REP ID:	—

Batch QC Results MDL: — PQL: 0.10

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.10	mg/L	DSB	1/10/94 10:40
LCS % Rec	107	% Rec		
LCSD % Rec	—	% Rec		
LCS/LCSD RPD	—	% RPD		
MS % Rec	105	% Rec		
MSD % Rec	104	% Rec		
MS/MSD RPD	0.96	% RPD		
REP RPD	—	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: 310_1

PREPREP METHOD:

PREP METHOD:

ANALYSIS METHOD: 310_1

BATCH DATE: ~~12/28/93~~ 12/27/93

INSTRUMENT ID: A

SET (BATCH) #:

Work Orders/Fractions Associated With Batch

Lab Sample ID's	Batch QC ID's
1 B312241-02C	LCS ID: ~~LCS122093~~ SAT LCS1227-93-1
2 02C	LCSD ID: ~~LCSD122093~~ SAT LCSD122793-1
3 Dup of 04C	MB ID: MB 122793-1
4 03C 05C	MS ID: NA
5 B312263-01A	MSD ID: NA
6 02A	REP ID: B312246-04C
7	B312246-05C
8	
9	
10	
11	
12	
13	
14 SAT	
15	
16 12/28	
17	
18	
19	
20	

Batch QC Results MDL: _____ PQL: 1.0

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0	mg/L	SAT	12/27 12:00
LCS % Rec	90.9	% Rec		
LCSD % Rec	88.1	% Rec		
LCS/LCSD RPD	2.6	% RPD		
MS % Rec	NA	% Rec		
MSD % Rec		% Rec		
MS/MSD RPD		% RPD		
REP RPD	0/0.508	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: SiO2
PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: SI O2
BATCH DATE: 12/29/93
INSTRUMENT ID: A
SET (BATCH) #: 2

Work Orders/Fractions Associated With Batch

Lab Sample ID's	
1	B312176-02C
2	-03C
3	~~-04C~~ SAT
4	B312246-02C
5	03C
6	04C
7	05C
8	
9	
10	
11	
12	
13	
14	
15	
16	12-23
17	
18	
19	
20	

Batch QC ID's	
LCS ID:	LCS 122993-2
LCSD ID:	LCSD 122993-2
MB ID:	MB 122993-2
MS ID:	B312176-04C
MSD ID:	B312176-05C
REP ID:	LCSD 122993

Batch QC Results MDL: _____ PQL: 0.20 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0	mg/L	~~SAT~~	12/29
LCS % Rec	90.0	% Rec		
LCSD % Rec	96.0	% Rec		
LCS/LCSD RPD	6.45	% RPD		
MS % Rec	92.0	% Rec		
MSD % Rec	104	% Rec		
MS/MSD RPD	12.2	% RPD		
REP RPD	6.45	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: COD
PREPREP METHOD:
PREP METHOD:
ANALYSIS METHOD: COD
BATCH DATE: 12/28/93
INSTRUMENT ID: A
SET (BATCH) #: 21

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1 B312246-02C
2 -03C
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Batch QC ID's

LCS ID: LCS 122893-2
LCSD ID: LCSD 122893-2
MB ID: MB 122893-2
MS ID: B312246-04C
MSD ID: B312246-05C
REP ID: LCSD 122893-2

Batch QC Results

MDL: _____ PQL: 25 mg/L

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	10	mg/L	SAT	12/08 16:00
LCS % Rec	96.4	% Rec		
LCSD % Rec	106	% Rec		
LCS/LCSD RPD	9.45	% RPD		
MS % Rec	101	% Rec		
MSD % Rec	104	% Rec		
MS/MSD RPD	2.93	% RPD		
REP RPD	9.49	% RPD		

Comments:

ITAS - AUSTIN

Prep Code/Date: 8520 /
Test Code/Date: 8270 / 12-22-
Set #: _____ Inst. ID: _____

Type	Lab Sample ID	Lab File ID	Performed (Y or N)
Blank	B312246-BLK		
Sample			
MS	B312246-4B	3MS	
MSD	-5B	3MSD	
LCS	-LCS		

This QA Spike Lot applies to the following Samples:

#	Client Sample ID	Lab Sample ID	Lab File ID
1		B312246-2B	12/22 SCH
2		-3B	↓ ↓
3		B312245-8B	
4		B312266-12B	
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Comments: _____

WATER SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: ITAS - Austin CLIENT ID: QC BATCH ID
Sample Names: FG246BS FG246BLK Prep Code/Date: 3520 | 1/5/94
Date Ran: 1/6/94 1/6/94 Test Code/Date: 8270 | 1/5/94
Time Ran: 16.09 15.33 Set #: 1 Inst.ID: F
Matrix Spike - SAM Sample No. B312246BLK Matrix: WATER
(1000 ML TO 1 ML) 1.0 X DIL

COMPOUND NAME	SPIKE ADDED (ug/L)	BLANK CONC (ug/L)	BS CONC (ug/L)	BS % REC	#	QC LIMITS REC.	CLP LIMIT SPIKE	%RPD
PHENOL	100.00	0	39.74	40		14 - 99	12 - 110	42
2-CHLOROPHENOL	100.00	0	90.61	91		19 - 107	27 - 123	40
1,4-DICHLOROBENZENE	50.00	0	42.11	84		18 - 101	36 - 97	28
N-NITROSODI-N-PROPYLAMINE	50.00	0	52.38	105		32 - 108	41 - 116	38
1,2,4-TRICHLOROBENZENE	50.00	0	39.43	79		24 - 99	39 - 98	28
4-CHLORO-3-METHYLPHENOL	100.00	0	94.18	94		31 - 111	23 - 97	42
ACENAPHTHENE	50.00	0	51.81	104		33 - 110	46 - 118	31
4-NITROPHENOL	100.00	0	32.88	33		1 - 141	10 - 80	50
2,4-DINITROTOLUENE	50.00	0	47.10	94		35 - 106	24 - 96	38
PENTACHLOROPHENOL	100.00	0	88.54	89		1 - 147	9 - 103	50
PYRENE	50.00	0	58.79	118		42 - 119	26 - 127	51

Column to be used to flag recovery and RPD values with an asterisk.
* Values outside of QC limits.
Spike Recovery: 0 out of 22 outside limits.

SURROGATE RECOVERIES	FG246BS	FG246BLK	LIMITS
D5-NITROBENZENE	92	80	35 - 114
2-FLUOROBIPHENYL	83	75	43 - 116
D14-P-TERPHENYL	108	103	33 - 141
D5-PHENOL	40	32	10 - 94
2-FLUOROPHENOL	63	58	21 - 100
2,4,6-TRIBROMOPHENOL	103	82	10 - 123

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY AND BLANK SPIKE RECOVERY

Lab Name: ITAS - Austin QC BATCH ID

Sample Names: FG24604 FG24605 Prep Code/Date: 3520 |1/5/94

Date Ran: 1/6/94 1/6/94 Test Code/Date: 8270 |1/5/94

Time Ran: 17.20 17.56 Set #: * Inst.ID: F

Matrix Spike - SAM Sample No. B3122460[illegible] Matrix: WATER

(450 ML TO 1 ML) 1.0 X DIL

COMPOUND NAME	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	MS CONC (ug/L)	MS % REC #	QC LIMITS REC.
PHENOL	222.22	.00	85.11	38	26 - 90
2-CHLOROPHENOL	222.22	.00	203.91	92	25 - 102
1,4-DICHLOROBENZENE	111.11	.00	94.07	85	28 - 104
N-NITROSODI-N-PROPYLAMINE	111.11	.00	114.47	103	41 - 126
1,2,4-TRICHLOROBENZENE	111.11	.00	88.78	80	38 - 107
4-CHLORO-3-METHYLPHENOL	222.22	.00	208.47	94	26 - 103
ACENAPHTHENE	111.11	.00	113.09	102	31 - 137
4-NITROPHENOL	222.22	.00	79.96	36	11 - 114
2,4-DINITROTOLUENE	111.11	.00	104.40	94 *	28 - 89
PENTACHLOROPHENOL	222.22	.00	199.69	90	17 - 109
PYRENE	111.11	.00	137.11	123	35 - 142

COMPOUND NAME	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
PHENOL	222.22	87.69	39	3	35	26 - 90
2-CHLOROPHENOL	222.22	199.04	90	2	50	25 - 102
1,4-DICHLOROBENZENE	111.11	101.18	91	7	27	28 - 104
N-NITROSODI-N-PROPYLAMINE	111.11	112.40	101	2	38	41 - 126
1,2,4-TRICHLOROBENZENE	111.11	93.47	84	5	23	38 - 107
4-CHLORO-3-METHYLPHENOL	222.22	215.93	97	4	33	26 - 103
ACENAPHTHENE	111.11	113.38	102	0	19	31 - 137
4-NITROPHENOL	222.22	82.49	37	3	50	11 - 114
2,4-DINITROTOLUENE	111.11	104.73	94 *	0	47	28 - 89
PENTACHLOROPHENOL	222.22	205.16	92	3	47	17 - 109
PYRENE	111.11	137.53	124	0	36	35 - 142

Column to be used to flag recovery and RPD values with an asterisk.

* Values outside of QC limits.

RPD: 0 out of 11 outside limits.

Spike Recovery: 2 out of 22 outside limits.

SURROGATE RECOVERIES	FG24604	FG24605	LIMITS
D5-NITROBENZENE	97	97	35 - 114
2-FLUOROBIPHENYL	82	84	43 - 116
D14-P-TERPHENYL	113	114	33 - 141
D5-PHENOL	40	40	10 - 94
2-FLUOROPHENOL	58	61	21 - 100
2,4,6-TRIBROMOPHENOL	90	92	10 - 123

QC BATCH ID FOR GFAA/CVAA - Test Code: As-GF
PREPREP METHOD:
PREP METHOD: E 3020
ANALYSIS METHOD: 7060
BATCH DATE: 12-28-93
INSTRUMENT ID: D
SET (BATCH) #: 2

Work Orders/Fractions Associated With Batch

Lab Sample ID's

1	B312245-08B
2	B312246-02D
3	-03D
4	B312266-12B
5	
6	
7	
8	
9	
10	
11	
12	
13	
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16	
17	
18	
19	
20	

Batch QC ID's

LCS ID:	LCS20 122893-2
LCSD ID:	LCSD20 122893-2
MB ID:	PB20 122893-2
MS ID:	B312246-04D
MSD ID:	-05D
REP ID:	-03D DUP

Batch QC Results

MDL: 0.165 PQL: 0.010

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	<0.010		BG	1-7-94 11:33
LCS % Rec	107	% Rec		
LCSD % Rec	99	% Rec		
LCS/LCSD RPD	7.8	% RPD		
MS % Rec	109	% Rec		
MSD % Rec	108	% Rec		
MS/MSD RPD	0.92	% RPD		
REP RPD	0	% RPD		

Comments:

QC BATCH ID FOR WET CHEM - Test Code: CR_VI

PREPREP METHOD:

PREP METHOD:

ANALYSIS METHOD: CR_VI

BATCH DATE: 12/18/93

INSTRUMENT ID: A

SET (BATCH) #: 1

Work Orders/Fractions Associated With Batch

Lab Sample ID's	Batch QC ID's
1 B312246-02C	LCS ID: LCS 121893-1
2 -03C	LCSD ID: LCSD 121893-1
3	MB ID: MB 121893-1
4	MS ID: B312246-04C
5	MSD ID: B312246-05C
6	REP ID: LCSD 121893
7	
8	
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12	
13	
14	
15	
16	
17	
18	
19	
20	

Batch QC Results MDL: _____ PQL: 0.01

Sample ID	Result	Units	Analyst	Date/Time
Method Blk	0	mg/L	SAE	12/18 09:00
LCS % Rec	98.0	% Rec		
LCSD % Rec	~~98~~ 100.0	% Rec		
LCS/LCSD RPD	0 ~~2.00~~	% RPD		
MS % Rec	~~104~~ 102	% Rec		
MSD % Rec	~~100~~ 98	% Rec		
MS/MSD RPD	4.0 ~~3.99~~	% RPD		
REP RPD	2.02	% RPD		

Comments:

44-8-85

APPENDIX D
SITE SURVEY REPORT

Phone: (405) 843-4847
WATS: (800) 654-3218
FAX: (405) 843-0975

TOPOGRAPHIC
LAND SURVEYORS
OF OKLAHOMA

Surveying and Mapping for Oklahoma's Energy Industry

6709 N. Classen Blvd. Oklahoma City, Oklahoma 73116

International Technology Corporation
Attn.: Joe Pacelli
312 Directors Drive
Knoxville, Tn 37923
Reference: IT Subcontract No. **547295**
IDO-5001
Bid 93116
(*Survey Contract*)
4.4 Documentation of Surveying Activities

Survey Contractor:

Topographic Land Surveyors of Oklahoma
6709 N. Classen Blvd.
Oklahoma City, Oklahoma 73116
Edward D. (Deral) Paulk, PLS
President
Harry McClintick, PLS
Party Chief
(405) 843-4847

Instrumentation:

Work done was completed with a Topcon/Sokkisha Model C3E. Last calibration by the factory was done 10/10/1993 and was checked daily by standard survey methods to determine that the tolerance was within factory limits. The unique serial number for the instrument is # 153047. The data collector was a Hewlett-Packard 48SX using the TDS Survey card.

Methods:

Standard mil-spec survey methods were employed during the survey and included.
Double sets of repetitive angles, both in horizontal and vertical.
Distance in Meters and Feet for double redundancy.

Control Points:

All control points used were set by the Corps of Engineers and the coordinates were supplied to us in NAD-83 Meters, Oklahoma North Zone (3501) based upon the Lambert projection. Typical numbers were;

BM SE (secondary control points)
BM PR (Primary control points)

These points were established by Trimble 4000SE GPS receivers and are capable of obtaining accuracy in the centimeter range. During our survey we confirmed this accuracy and due to the nature of GPS usage, we did not balance our traverse of the monumentation. See explanation beginning on page three, this document.

Tabulation of Vertical and Horizontal Coordinates:

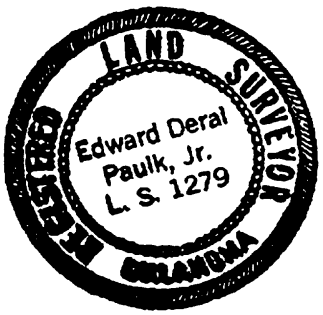
In sheet form broken into per site information in three formats.
NAD-83 Meters
NAD-27 Feet
NAD-83 Feet

Field Notes, Calculations and Reduction Techniques:

All field work was performed using Total Station and no reduction was necessary. Grid and Sea level factors used in the calculations are attached as part of this report. No paper field notes were kept, except diagrams explaining shot points. These are included as drawings and are part of the digital information supplied.
Actual closure of each particular site is disclosed within this document beginning on page 4.

This survey is true and accurate based upon monumentation supplied by Tinker Air Force Base.

Edward D. Paulk, PLS #1279
Topographic Land Surveyors of Oklahoma
6709 N. Classen Blvd.
Oklahoma City, Oklahoma 73116



USAGE OF GPS MONUMENTATION

Qualifications:
We are a Trimble Navigation dealer for the Midwest and have had crews surveying using GPS for over two years. Edward D. Paulk, has attended training and seminars continually to maintain a level of experience and technical knowledge of GPS that exceeds specs of GPS surveys.

During the course of our preliminary survey, we had closures that exceeded specs and we were forced to continue surveys back to our point of beginning to check our accuracy. We continually proved our surveys by closures exceeding 1 in 10,000, but we could not achieve this using the provided GPS monumentation and closing on a third monument.

We contacted the base mapping department and learned that the monuments were set using 4000SE receivers (GPS) by the Corps of Engineers. The 4000SE is capable of accuracy on any point of +/- 1-3 Centimeters. After this determination, we were well within specs of their given coordinates.

Their survey closure was probably quite good given the distances that they monumented, however when you use relatively close monuments as our survey dictated and very few traverse points, the error looks poor. Had we shot a mile away, then back to add some footage to our survey, the closure would have been much better. Since this technique is only used to comply with a pure mathematical closure, not a better survey, and would not actually improve positional accuracy, we did not do this.

Site by Site Report

File HM-A
HCL Tank
4 Soil Borings
IT Drawing #409832 Fig. 5.5
Horizontal and Vertical Control was establish for (4) four Soil Borings.
BM SE-33, SE-05 and PR-07 were used for control.

Upon first completion of traverse, we closed on PR-07 with 3.041' of error, but our vertical was with 0.05'. We made a closure back to SE-05 and closed within 0.4'. This site had the only apparent large discrepancy in their control. Since SE-33 and SE-05 agreed within limits we used these to determine closure.

Horizontal Accuracy 1 in 10,000
Vertical Accuracy 1 in 95,800

File HM-B
SPILL POND
2 Soil Borings
IT Drawing #409832 Fig. 5.6
Horizontal and Vertical Control was establish for (2) Soil Borings.
BM SE-33, SE-37 and SE-42 were used for control.

Horizontal Accuracy 1 in 5902
Vertical Accuracy 1 in 12,000

We closed back upon our first monument horizontally 1 in 25,000 as a check.

File HM-C
Sludge Drying Beds and Old Pesticide Area
13 Soil Borings
6 Monitor Wells
7 SG Points
IT Drawing # 409832 Fig. 5.3 and 5.7
Horizontal and Vertical Control was established for (13) Soil Borings, (6) Six Monitor wells and (7) SG Points.
BM SE-41, SE-45 and SE-47 were used for control.
Horizontal Accuracy 1 in 8725
Vertical Accuracy 1 in 390,000

We closed back upon BM SE-45 as a check and closed 1 in 14,000 Horizontally.

FileHM-D
Fuel Truck
(8) Soil Borings
(3) Monitor Wells
(3) SG Points
IT Drawing #409832 Fig. 5.4
Horizontal and Vertical Control was established for (8) Soil Borings, (3) Monitor wells and (3) SG Points.
BM PR-02, SE-16 and PR-03 were used for control.

Horizontal Accuracy 1 in 22,586
Vertical Accuracy 1 in 20,000

File HM-E
Ordnance Disposal Area
(5) Soil Borings
(4) Corners of area as per staked and Dan McGregor's instructions.
IT Drawing #409832 Fig. 5.1
Horizontal and Vertical Control was established for (5) Soil Borings, (4) Corners of area.
BM SE-19, PR-02 and SE-016 were used for control.

Horizontal Accuracy 1 in 10,000
Vertical Accuracy 1 in 20,000

File HM-F
Fire Training Area 2
(8) Monitor Wells
IT Drawing #409832 Fig. 5.8
Horizontal and Vertical Control was established for (8) Monitor Wells.
BM SE-37, SE-33 and BM32 were used for control.

Horizontal Accuracy 1 in 34,800
Vertical Accuracy 1 in 95,000

File HM-G
AFFF Fire Control Pond
(4) Soil Borings
IT Drawing #409832 Fig. 5.2
Horizontal and Vertical Control was established for (4) Soil Borings.
BM SE-31, SE-22 and PR-01 were used for control.

Horizontal Accuracy 1 in 6500
Vertical Accuracy 1 in 58,000

Shots Typical

Soil Borings- One X,Y,Z placed center of drill hole, typically on top of concrete fill-in area.
(36) Total Soil Borings

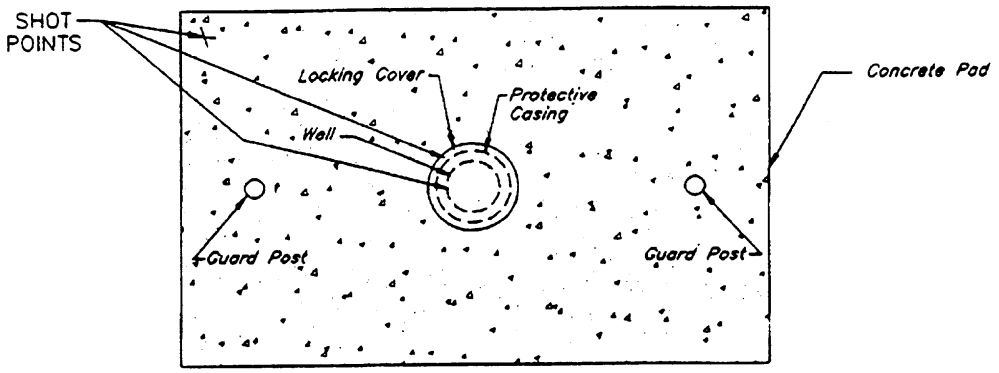
Monitor Well- (*Flush mount*) Three X,Y,Z,s were placed upon each well.
1: NW Corner of concrete pad.
2: Top of retaining casing, where well number was stamped into a milled area.
3: Top of well, under seal, (X,Y determined for center, and Z determined at north lip of well.

(*Tower Mount*) Three X,Y,Z,s were placed upon each well.
1: NW Corner of concrete pad.
2: Top of square guard, center
3: Screw cap removed, X and Y in Center and Z on the North lip of well.
(17) Total Monitoring wells. 51 points.

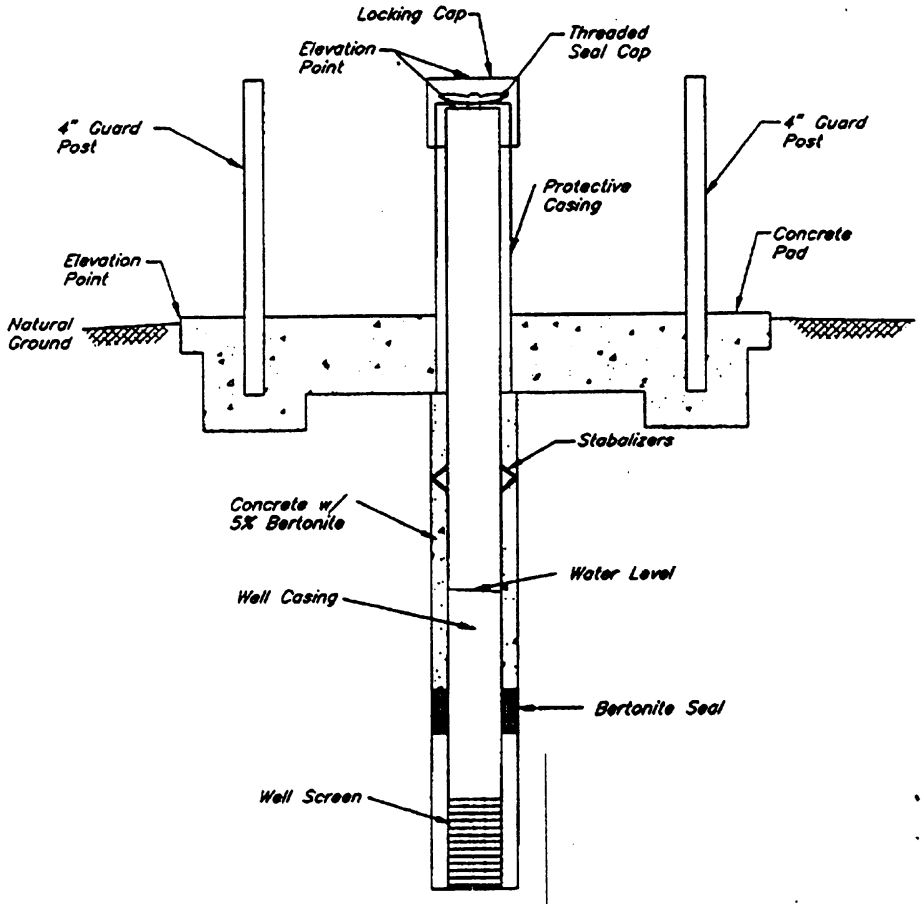
In addition; we determined X,Y and Z for a number of SG points. These were determined at center of dig point.

In addition; we determined X,Y and Z for four corners of an area in the **Ordnance Disposal area** as per Dan McGregor's instructions. These points were stakes set by previous contractor.

Included in this report are two drawings showing typical well layouts.
Drawing Flush.Dwg
Tower.Dwg



TOP VIEW



SIDE VIEW

NO.	REVISION	DATE	BY

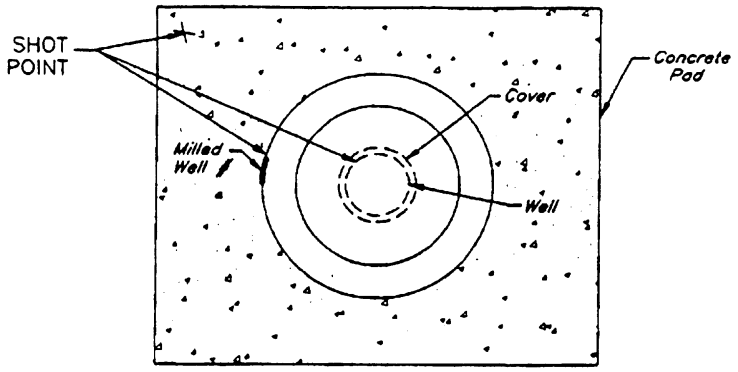
TYPICAL STICK-UP MONITORING WELLS

TOPOGRAPHIC LAND SURVEYORS
OKLAHOMA CITY, OKLAHOMA

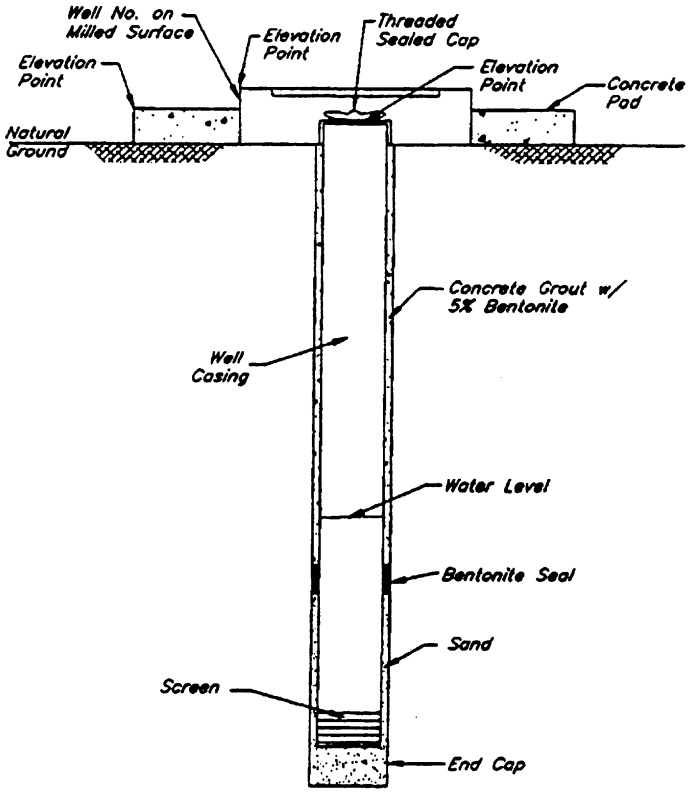
DATE: 1-19-94

DRAWING: STICK-UP.DWG

SHEET OF



TOP VIEW



SIDE VIEW

NO.	REVISION	DATE	BY

TYPICAL FLUSH MOUNT MONITORING WELLS

TOPOGRAPHIC LAND SURVEYORS
OKLAHOMA CITY, OKLAHOMA

DATE: 1-18-94

DRAWING: FLUSH.DWG

SHEET OF

Tinker AFB		Factors Factors.txt	
Calculations for Grid Distance			
Formula Used	1-(1250)/(20,906,000)	0.9999402086	Elevation Factor
Elevation average is 1250			
Grid Factor from USGS Tables			
Average Latitude is 35-25		1.0000306000	Grid Factor
Combination Factor is multiple of these		0.9999708067	Combo Factor

Diskette Files

Disk Labeled *IDO-5001*
#547295
Text Files and Final Reports

FILE NAME	DESCRIPTION
Report.WPS	Microsoft Works file of final report
Report.TXT	ASCII file of final report.
Finals.WB1	Quattro Pro for Windows data base All areas, control and Factors NAD-83, NAD-27
Finals.WK3	1-2-3 V.3.x database All areas, control and Factors
Hcl.TXT	ASCII of HCL Area
Spill.TXT	ASCII of Spill Pond
Sludge.TXT	ASCII of Sludge and Pesticide
Fuel.TXT	ASCII of Fuel Truck
Ordance.TXT	ASCII of Ordnance area
Fire.TXT	ASCII of Fire Training
FireC.TXT	ASCII of Fire Control
NAD83.TXT	ASCII of X,Y,Z and Description
NAD27.TXT	ASCII of X,Y,Z and Description
Control.TXT	ASCII of X,Y,Z and Description of control monuments.
Factor.TXT	ASCII of grid/elevation factors used in calculations.

Nad 83 Datum — **Format given was in meters**

State Plane Lambert Coordinate System — Conversion used was

Oklahoma North Zone — Meters X 3.280833337

Values in Feet

Control Coordinates from GPS

	GPS Marker	Meters		Meters Northing	Meters Easting	Feet		Nad 1927 Feet Northing	Nad 1927 Feet Easting
Fire Training Center	SE24	[illegible]	1,269.16	45950.816	655952.839	[illegible]	2152071.943	150730.584	2183669.404
	SE28	[illegible]	1,269.53	45604.798	655531.584	[illegible]	2150689.874	149595.353	2182287.332
	SE32	[illegible]	1,268.59	45431.969	655045.990	[illegible]	2149096.721	149026.353	2180694.179
	SE43	[illegible]	1,240.39	46303.717	654817.311	[illegible]	2148340.462	151888.413	2179943.944
Bldg 1030 Spill Pond	SE37	[illegible]	1,240.60	45788.902	654625.746	[illegible]	2147717.979	150199.400	2179315.440
	SE42	[illegible]	1,229.29	46296.627	654526.676	[illegible]	2147392.938	151865.163	2178990.423
Bldg 979 AFFF	SE22	[illegible]	1,267.20	44861.607	655589.130	[illegible]	2150878.073	147157.075	2182476.110
	SE31	[illegible]	1,275.22	44877.485	654833.045	[illegible]	2148388.695	147209.198	2179995.530
	PR01	[illegible]	1,268.50	44381.814	655603.420	[illegible]	2150926.555	145582.956	2182522.978
Sludge Drying Beds	SE45	[illegible]	1,228.69	46693.176	654086.696	[illegible]	2145949.497	153186.188	2177546.973
	SE47	[illegible]	1,222.66	47117.173	654049.981	[illegible]	2145828.083	154577.245	2177426.496
	SE41	[illegible]	1,248.10	46360.622	653942.053	[illegible]	2146474.599	152095.142	2177072.383
HCL Tank	SE05	[illegible]	1,270.65	46999.293	656307.763	[illegible]	2153256.387	154190.415	2184833.870
	SE08	[illegible]	1,296.84	46012.200	656807.677	[illegible]	2154876.521	150931.917	2186473.977
	PR07	[illegible]	1,291.13	47640.475	656374.729	[illegible]	2153456.692	156274.017	2185053.591
Ordinance Disposal	SE16	[illegible]	1,269.13	44935.219	656910.278	[illegible]	2155213.140	147398.529	2186810.565
	PR02	[illegible]	1,293.84	44519.766	656757.523	[illegible]	2154711.976	146035.508	2186309.389
	SE15	[illegible]	1,297.22	44874.549	656322.201	[illegible]	2153283.757	147199.504	2184881.187
Fuel Truck Maint.	SE10	[illegible]	1,265.81	45464.255	656655.015	[illegible]	2154375.662	149134.216	2185973.103
	PR03	[illegible]	1,306.73	45229.480	657014.725	[illegible]	2155555.611	148363.948	2187153.241
Others	SE03	[illegible]	1,258.28	47481.646	656307.338	[illegible]	2152234.994	155752.933	2184832.489
	SE19	[illegible]	1,267.80	44134.062	656649.276	[illegible]	2154356.837	144770.084	2185954.242
	SE33	[illegible]	1,260.57	45572.014	654847.132	[illegible]	2148444.301	149487.624	2180041.762
	SE38	[illegible]	1,260.98	45560.105	653975.745	[illegible]	2145585.425	149448.783	2177182.896
	[illegible]	[illegible]	1,255.01	45726.546	654009.317	[illegible]	2145695.571	149994.849	2177293.048

Tinker AFB			
Calculations for Grid Distance			
Formula Used	1-(1250)/(20,906,000)	0.9999402086	Elevation Factor
Elevation average is 1250			
Grid Factor from USGS Tables			
Average Latitude is 35-25		1.0000306000	Grid Factor
Combination Factor is multiple of these		0.9999708067	Combo Factor

Topographic	*HM-A File*	HCL Tank								
	NAD-83 Feet			NAD-83 Meters			NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
SB-045	153284.190	2153636.064	1275.110	46721.114	656,429.578	388.654	153257.757	2,185,233.520	1275.110
SB-044	153838.492	2153621.494	1275.980	46890.066	656,425.137	388.919	153812.059	2,185,218.954	1275.980
SB-042	154150.008	2153620.517	1276.230	46985.016	656,424.839	388.996	154123.573	2,185,217.979	1276.230
SB-043	154445.476	2153604.478	1275.830	47075.075	656,419.950	388.874	154419.041	2,185,201.941	1275.830
				Conversion Factor			NAD-27 Derived with		
				Meters X 3.28083337			Corpscon Program		
				3.28083337					

Topographic	*HM-B File*	Spill Pond								
	NAD-83 Feet			NAD-83 Meters				NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation		Northing	Easting	Elevation
SB-019	150763.571	2148028.472	1227.435	45952.828	654,720.380	374.123		150737.212	2,179,625.925	1227.435
SB-020	150782.180	2148011.904	1226.202	45958.500	654,715.330	373.747		150755.821	2,179,609.357	1226.202
				Conversion Factor				NAD-27 Derived with		
				Meters X 3.28083337				Corpscon Program		
				3.28083337						

Topographic	HM-C	Sludge and Pesticide		Conversion	3.28083337				
	NAD-83 Feet			NAD-83 Meters			NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
SB-029	153312.251	2145687.276	1226.929	46729.667	654006.782	373.969	153285.911	2177284.758	1226.929
SB-030	153346.842	2145683.882	1225.960	46740.210	654005.748	373.673	153320.501	2177281.365	1225.960
SB-031	153365.289	2145684.283	1226.145	46745.833	654005.870	373.730	153338.949	2177281.766	1226.145
SB-032	153366.845	2145704.893	1226.026	46746.307	654012.152	373.693	153340.504	2177302.376	1226.026
SB-033	153369.982	2145725.373	1226.205	46747.263	654018.394	373.748	153343.640	2177322.855	1226.205
SB-034	153367.428	2145750.652	1225.884	46746.485	654026.099	373.650	153341.088	2177348.133	1225.884
NWCorPad	153327.504	2145660.862	1227.987	46734.316	653998.731	374.291	153301.164	2177258.344	1227.987
BrassTag	153325.646	2145662.395	1228.252	46733.750	653999.199	374.372	153299.307	2177259.879	1228.252
MW2-67A	153325.656	2145662.944	1227.880	46733.753	653999.366	374.259	153299.317	2177260.427	1227.880
NWCorPad	153334.792	2145660.365	1227.942	46736.538	653998.580	374.277	153308.454	2177257.848	1227.942
BrassTag	153332.586	2145662.743	1228.136	46735.865	653999.305	374.337	153306.246	2177260.227	1228.136
MW2-67B	153333.109	2145662.460	1227.749	46736.025	653999.218	374.219	153306.771	2177259.941	1227.749
SG-021	153294.259	2145661.494	1227.875	46724.183	653998.924	374.257	153267.920	2177258.977	1227.875
SG-027	153504.913	2145656.153	1227.450	46788.391	653997.296	374.128	153478.575	2177253.637	1227.450
NWCorPad	153485.156	2145668.540	1227.773	46782.369	654001.072	374.226	153458.818	2177266.025	1227.773
BrassTag	153482.661	2145670.729	1227.992	46781.608	654001.739	374.293	153456.321	2177268.214	1227.992
MW2-68A	153483.317	2145670.331	1227.639	46781.808	654001.618	374.185	153456.977	2177267.817	1227.639
NWCorPad	153498.329	2145667.974	1227.737	46786.384	654000.899	374.215	153471.990	2177265.458	1227.737
BrassTag	153497.345	2145669.894	1227.801	46786.084	654001.484	374.234	153471.006	2177267.377	1227.801
MW2-68B	153496.783	2145670.021	1227.501	46785.913	654001.523	374.143	153470.445	2177267.505	1227.501
SB-035	153513.044	2145686.160	1225.832	46790.869	654006.442	373.634	153486.704	2177283.644	1225.832
SB-041	153461.953	2145572.501	1226.184	46775.296	653971.799	373.742	153435.613	2177169.986	1226.184
SG-045	153403.851	2145548.281	1227.352	46757.587	653964.417	374.098	153377.514	2177145.766	1227.352
SG-043	153478.151	2145547.779	1227.388	46780.233	653964.264	374.109	153451.811	2177145.265	1227.388
SB-039	153436.514	2145600.936	1225.186	46767.542	653980.466	373.437	153410.174	2177198.420	1225.186
SB-040	153422.287	2145576.593	1225.367	46763.206	653973.046	373.493	153395.948	2177174.077	1225.367
SB-036	153520.297	2145709.088	1225.408	46793.080	654013.431	373.505	153493.958	2177306.573	1225.408
SB-037	153515.849	2145723.059	1225.822	46791.724	654017.689	373.631	153489.509	2177320.543	1225.822
SB-038	153515.734	2145749.026	1225.397	46791.689	654025.604	373.502	153489.394	2177346.511	1225.397
SG-030	153587.989	2145651.621	1228.246	46813.712	653995.915	374.370	153561.649	2177249.107	1228.246
SG-034	153561.346	2145780.604	1228.528	46805.591	654035.229	374.456	153535.004	2177378.089	1228.528
SG-035	153529.622	2145780.692	1228.755	46795.922	654035.256	374.525	153503.281	2177378.177	1228.755
NWCorPad	153503.822	2145892.455	1228.566	46788.058	654069.321	374.468	153477.479	2177489.938	1228.566
BrassTag	153501.522	2145894.847	1228.786	46787.357	654070.050	374.535	153475.180	2177492.330	1228.786
MW2-66B	153501.835	2145894.243	1228.424	46787.452	654069.866	374.424	153475.491	2177491.726	1228.424
NWCorPad	153512.675	2145892.637	1228.458	46790.756	654069.377	374.435	153486.331	2177490.122	1228.458
BrassTag	153511.424	2145894.290	1228.601	46790.375	654069.880	374.478	153485.081	2177491.772	1228.601
MW2-66A	153510.700	2145894.300	1228.209	46790.154	654069.883	374.359	153484.356	2177491.782	1228.209

Topographic	*HM-D*	Fuel Truck		NAD-83 Meters			NAD-27		
	NAD-83 Feet								
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
NWCorPad	148775.507	2155282.108	1295.444	45346.865	656931.293	394.852	148749.069	2186879.522	1295.444
TopCap	148773.603	2155283.795	1298.011	45346.284	656931.807	395.635	148747.163	2186881.208	1298.011
MW2-59	148773.597	2155283.829	1297.780	45346.283	656931.818	395.564	148747.160	2186881.244	1297.780
NWCorPad	148680.914	2155133.601	1295.503	45318.033	656886.028	394.870	148654.478	2186731.015	1295.503
TopCap	148679.362	2155135.280	1297.910	45317.560	656886.540	395.604	148652.926	2186732.695	1297.910
MW2-61	148679.399	2155135.301	1297.669	45317.571	656886.546	395.530	148652.962	2186732.714	1297.669
SG-011	148684.532	2155080.720	1293.606	45319.135	656869.910	394.292	148658.094	2186678.134	1293.606
SG-007	148683.636	2155169.969	1294.398	45318.862	656897.113	394.533	148657.198	2186767.383	1294.398
SB-028	148708.492	2155153.422	1295.649	45326.439	656892.069	394.915	148682.056	2186750.834	1295.649
SB-026	148715.397	2155133.878	1295.280	45328.543	656886.112	394.802	148688.959	2186731.291	1295.280
SB-025	148744.572	2155125.634	1295.337	45337.436	656883.600	394.820	148718.136	2186723.049	1295.337
SB-024	148770.840	2155121.237	1295.452	45345.442	656882.259	394.855	148744.402	2186718.650	1295.452
SB-023	148773.567	2155152.471	1295.640	45346.273	656891.780	394.912	148747.128	2186749.887	1295.640
SG-003	148792.311	2155168.857	1295.340	45351.987	656896.774	394.820	148765.875	2186766.271	1295.340
SB-021	148790.269	2155106.589	1295.427	45351.364	656877.795	394.847	148763.832	2186704.005	1295.427
SB-022	148767.379	2155095.618	1295.804	45344.387	656874.451	394.962	148740.941	2186693.033	1295.804
SB-027	148708.128	2155095.209	1295.822	45326.328	656874.326	394.967	148681.693	2186692.623	1295.822
NWCorPad	148744.809	2155092.856	1295.791	45337.508	656873.609	394.958	148718.373	2186690.271	1295.791
Brasstag	148743.943	2155093.661	1295.890	45337.244	656873.854	394.988	148717.506	2186691.074	1295.890
MW2-60	148743.299	2155093.599	1295.587	45337.048	656873.835	394.896	148716.863	2186691.012	1295.587
		Conversion	3.28083337						
		Factor							

Topographic

Topographic	*HM-E File*	Ordnance		NAD-83 Meters			NAD-27		
	NAD-83 Feet								
Description	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
SB-014	146445.086	2154383.435	1311.061	44636.551	656857.377	399.612	146418.665	2185980.834	1311.061
SB-013	146413.073	2154355.429	1310.171	44626.793	656648.841	399.341	146386.651	2185952.828	1310.171
SB-011	146447.893	2154329.998	1310.433	44637.407	656641.089	399.421	146421.474	2185927.398	1310.433
SB-012	146465.811	2154321.959	1310.473	44642.868	656638.639	399.433	146439.390	2185919.358	1310.473
SB-010	146542.271	2154343.810	1311.318	44666.173	656645.299	399.691	146515.850	2185941.209	1311.318
NWCorSite	146721.400	2154322.520	1309.813	44720.772	656638.810	399.232	146694.980	2185919.921	1309.813
SWCorSite	146451.388	2154188.076	1308.511	44638.472	656597.831	398.835	146424.969	2185785.474	1308.511
SECorSite	146305.859	2154478.943	1308.422	44594.115	656686.488	398.808	146279.439	2186076.341	1308.422
NECorSite	146573.205	2154611.871	1306.203	44675.602	656727.004	398.131	146546.781	2186209.268	1306.203
		Conversion Factor	3.28083337						

Topographic	*HM-F*	Fire Training		NAD-83 Meters			NAD-27		
	NAD-83 Feet			Northing	Easting	Elevation	Northing	Easting	Elevation
Description	Northing	Easting	Elevation						
NWCorPad	150499.212	2150362.314	1246.117	45872.251	655431.737	379.817	150472.826	2181959.759	1246.117
Brasstag	150496.710	2150361.243	1246.334	45871.488	655431.410	379.883	150470.323	2181958.686	1246.334
MW2-64A	150496.592	2150361.920	1246.052	45871.452	655431.617	379.797	150470.205	2181959.365	1246.052
NWCorPad	150496.378	2150370.497	1245.748	45871.387	655434.231	379.705	150469.991	2181967.941	1245.748
BrassTag	150494.048	2150369.766	1245.897	45870.677	655434.008	379.750	150467.662	2181967.209	1245.897
MW2-64B	150493.787	2150370.314	1245.586	45870.598	655434.175	379.655	150467.403	2181967.757	1245.586
NWCORPAD	150413.765	2150435.848	1243.361	45846.207	655454.150	378.977	150387.380	2182033.291	1243.361
BRASSTAG	150412.971	2150437.446	1243.561	45845.965	655454.637	379.038	150386.585	2182034.889	1243.561
MW2-63B	150412.498	2150437.914	1243.284	45845.821	655454.780	378.954	150386.113	2182035.358	1243.284
NWCORPAD	150417.479	2150443.373	1243.630	45847.339	655456.444	379.059	150391.093	2182040.817	1243.630
BRASSTAG	150416.999	2150445.608	1243.790	45847.192	655457.125	379.108	150390.611	2182043.052	1243.790
MW2-63A	150416.351	2150445.576	1243.387	45846.995	655457.115	378.985	150389.964	2182043.019	1243.387
NWCORPAD	150472.247	2150540.674	1246.052	45864.032	655486.101	379.797	150445.859	2182138.117	1246.052
BRASSTAG	150471.088	2150542.460	1246.266	45863.679	655486.645	379.863	150444.701	2182139.902	1246.266
MW2-62B	150470.906	2150543.115	1245.940	45863.623	655486.845	379.763	150444.517	2182140.558	1245.940
NWCORPAD	150475.671	2150552.586	1246.409	45865.076	655489.732	379.906	150449.284	2182150.03	1246.409
BRASSTAG	150474.251	2150554.084	1246.531	45864.643	655490.188	379.943	150447.863	2182151.526	1246.531
MW2-62A	150474.276	2150554.721	1246.213	45864.651	655490.383	379.846	150447.890	2182152.166	1246.213
NWCORPAD	150726.091	2150590.145	1251.120	45941.404	655501.180	381.342	150699.702	2182187.591	1251.120
BRASSTAG	150724.666	2150593.078	1251.270	45940.970	655502.074	381.388	150698.278	2182190.524	1251.270
MW2-65A	150724.671	2150592.440	1250.976	45940.971	655501.879	381.298	150698.281	2182189.884	1250.976
NWCORPAD	150740.546	2150583.419	1250.939	45945.810	655499.130	381.287	150714.157	2182180.865	1250.939
BRASSTAG	150739.181	2150585.126	1251.089	45945.394	655499.650	381.333	150712.792	2182182.571	1251.089
MW2-65B	150739.263	2150585.757	1250.812	45945.419	655499.842	381.248	150712.875	2182183.201	1250.812
		Conversion Factor	3.28083337						

Topographic	*HMA-G File*	Fire Control								
	NAD-83 Feet			NAD-83 Meters				NAD-27		
Description	Northing	Easting	Elevation	Northing	Easting	Elevation		Northing	Easting	Elevation
SB-018	147211.133	2150886.702	1268.631	44870.043	655,591.571	386.679		147184.752	2,182,484.119	1268.631
SB-017	147032.432	2150889.734	1270.361	44815.574	655,592.495	387.207		147006.049	2,182,487.149	1270.361
SB-016	146809.976	2150890.028	1273.784	44747.770	655,592.584	388.250		146783.596	2,182,487.440	1273.784
SB-015	146611.995	2150890.336	1275.957	44687.425	655,592.678	388.912		146585.615	2,182,487.746	1275.957
				Conversion Factor				NAD-27 Derived		
				Meters X 3.28083337				Corpscon Prog		
				3.28083337						

Coordinates in NAD 27 (Feet)			
SB-045	153257.757	2185233.520	1275.110
SB-044	153812.059	2185218.954	1275.980
SB-042	154123.573	2185217.979	1276.230
SB-043	154419.041	2185201.941	1275.830
SB-019	150737.212	2179625.925	1227.435
SB-020	150755.821	2179609.357	1226.202
SB-029	153285.911	2177284.758	1226.929
SB-030	153320.501	2177281.365	1225.960
SB-031	153338.949	2177281.766	1226.145
SB-032	153340.504	2177302.376	1226.026
SB-033	153343.640	2177322.855	1226.205
SB-034	153341.088	2177348.133	1225.884
NWCorPad	153301.164	2177258.344	1227.987
BrassTag	153299.307	2177259.879	1228.252
MW2-67A	153299.317	2177260.427	1227.680
NWCorPad	153308.454	2177257.848	1227.942
BrassTag	153306.246	2177260.227	1228.136
MW2-67B	153306.771	2177259.941	1227.749
SG-021	153267.920	2177258.977	1227.875
SG-027	153478.575	2177253.637	1227.450
NWCorPad	153458.818	2177266.025	1227.773
BrassTag	153456.321	2177268.214	1227.992
MW2-68A	153456.977	2177267.817	1227.639
NWCorPad	153471.990	2177265.458	1227.737
BrassTag	153471.006	2177267.377	1227.801
MW2-68B	153470.445	2177267.505	1227.501
SB-035	153486.704	2177283.644	1225.832
SB-041	153435.613	2177169.986	1226.184
SG-045	153377.514	2177145.766	1227.352
SG-043	153451.811	2177145.265	1227.388
SB-039	153410.174	2177198.420	1225.186
SB-040	153395.948	2177174.077	1225.367
SB-036	153493.958	2177306.573	1225.408
SB-037	153489.509	2177320.543	1225.822
SB-038	153489.394	2177346.511	1225.397
SG-030	153561.649	2177249.107	1228.246
SG-034	153535.004	2177378.089	1228.528
SG-035	153503.281	2177378.177	1228.755
NWCorPad	153477.479	2177489.938	1228.566
BrassTag	153476.180	2177492.330	1228.786
MW2-66B	153475.491	2177491.726	1228.424
NWCorPad	153486.331	2177490.122	1228.458
BrassTag	153485.081	2177491.772	1228.601
MW2-66A	153484.356	2177491.782	1228.209
NWCorPad	148749.069	2186879.522	1295.444
TopCap	148747.163	2186881.208	1298.011
MW2-59	148747.160	2186881.244	1297.760
NWCorPad	148654.478	2186731.015	1295.503
TopCap	148652.926	2186732.695	1297.910
MW2-61	148652.962	2186732.714	1297.669
SG-011	148658.094	2186678.134	1293.606
SG-007	148657.198	2186767.383	1294.398
SB-025	148682.056	2186750.834	1295.649
SB-026	148688.959	2186731.291	1295.280
SB-025	148718.136	2186723.049	1295.337
SB-024	148744.402	2186718.650	1295.452
SB-023	148747.128	2186749.887	1295.640
SG-003	148765.875	2186766.271	1295.340
SB-021	148763.832	2186704.005	1295.427
SB-022	148740.941	2186693.033	1295.804
SB-027	148681.693	2186692.623	1295.822
NWCorPad	148718.373	2186690.271	1295.791
Brasstag	148717.506	2186691.074	1295.890
MW2-60	148716.863	2186691.012	1295.587
SB-014	146418.665	2185980.834	1311.061
SB-013	146386.651	2185952.828	1310.171
SB-011	146421.474	2185927.396	1310.433
SB-012	146439.390	2185919.358	1310.473
SB-010	146515.850	2185941.209	1311.318
NWCorSite	146894.980	2185919.921	1309.813
SWCorSite	146424.969	2185785.474	1308.511
SECorSite	146279.439	2186076.341	1308.422
NECorSite	146546.781	2186209.268	1306.203
NWCorPad	150472.826	2181959.759	1246.117

APPENDIX E
GEOTECHNICAL, CERTIFICATES OF ANALYSIS, CHAIN OF CUSTODY

INTERNATIONAL TECHNOLOGY CORPORATION

GEOTECHNICAL LABORATORY

3/21/9

409802
409832

CERTIFICATE OF ANALYSIS

Karmen Deane
IT Corporation
5307 Industrial Oaks Blvd.
Suite 160
Austin, TX 78735

March 16, 1994

ETDC Project Number: 483500.094.04 **P.O. Number: 4627-341**
Job Number: 4I4627

This is the Certificate of Analysis for the following samples:

Client Project ID:	**Tinker AFB**
Date Received by Lab:	**November 23, 29, & 30, 1993**
Number of Samples:	**Twelve (12)**
Sample Type:	**Soil**

I. Introduction/Case Narrative

Twelve (12) soil samples were received by IT/ETDC for analyses of grain size distribution, cation exchange capacity, moisture content and permeability.

Please see Appendix A, the Sample Number Cross Reference List; Appendix B, the Analysis Results; Appendix C, the Chain of Custody and Request for Analysis Records and Appendix D, the Nonconformance/Variance report.

Reviewed and Approved:

Chanley Morgan
Project Manager, Geotechnical Services

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II. Analytical Results/Methodology

REFERENCES: Annual Book of ASTM Standards, Section 4, Construction, Volume 04.08, Soil and Rock; Dimension Stone; Geosynthetics. Volume 4.02, Concrete and Aggregates.

Grain Size Distribution	**ASTM D422**
Cation Exchange Capacity	**EPA, Method 9081**
Moisture Content	**ASTM D 2216**
Permeability	**ASTM D 5084**

III. Quality Control

Except for cation exchange capacity analysis, quality control checks such as duplicates and spikes (QC samples), are not normally applicable to geotechnical testing. This is due to the inability of obtaining samples with known characteristics, the heterogenous nature of the samples, and Quality Control procedures built-in to the analytical method.

QC measures to ensure accuracy and precision of test results include the following:

- 100% verification on all numerical results - all raw data entries, transcriptions and calculations entered by lab technicians are checked, recalculated and verified. Most data calculations are performed by computer programs.
- Data validation through test reasonableness - summaries of all test results for individual reports are reviewed to determine the overall reasonableness of data and to determine the presence of any data that may be considered outliers.
- Quality control procedures are built into most standardized geotechnical procedures. For example, many analyses routinely call for a re-analysis, specifying an acceptance criteria.
- Routine instrument calibration - all instruments, gauges and equipment used in testing are calibrated on a routine basis. All instrument calibration follows ASTM or manufacturer guidelines.
- Maintenance of all past calibration records - records and certification documents of all instruments, gauges and equipment are updated routinely and maintained in the Quality Control Coordinators Quality/Operations files.

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- Use of trained personnel for conducting tests - all technicians are trained in the application of standard laboratory procedures for geotechnical analyses as well as the quality assurance measures implemented by IT.

IV. Data Qualification

Fine sieve and hydrometer results occasionally overlap due to organic debris, soluble salts or other contaminants contained in the sample. Data points are plotted as calculated. No attempt has been made to curve-fit the grainsize data points.

The cation exchange procedure included analysis of a blank, and duplicates. The blank value was found to be below the method detection limit of 0.05 mg/l for sodium analysis. The relative percent difference (RPD) for the duplicate samples were 2.8 and 26.8. The RPD for sample ETDC-4686 which was outside the limit is thought to be due to sample heterogeneity rather than analytical precision.

Moisture contents are calculated in accordance with ASTM D 2216. Given results are based on the sample dry weight, not on the sample wet weight as is common in analytical chemistry.

On RFA/COC No: 417423, a permeability analysis was requested for sample number B311314-02B. There was an insufficient sample amount to perform requested analysis. Sample was obtained from tube marked as duplicate B311314-02A to perform permeability analysis.

The constant-head permeability test is based on the quantity of water flowing through the soil specimen versus time under essentially equilibrium conditions. ASTM D 5084, paragraph 8.5.3, states that equilibrium conditions are indicated by four consecutive permeation results not varying by more than 25% of the average of the tests. Porous soils containing appreciable amounts of silt normally saturate quickly and establish equilibrium in a few test runs of short duration. Soils containing high amounts of clays generally require longer saturation periods at higher confining pressures, and require much longer permeation periods at higher hydraulic gradients. Results are reported based on the average of the last four consecutive tests meeting the requirements of equilibrium conditions.

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Three permeability samples did not establish equilibrium conditions as defined by ASTM D 5084 before February 18, 1994, and were removed from testing in accordance with the memorandum dated February 9, 1994. The given results for sample numbers ETDC-4685, ETDC-4688, and ETDC-4692 are based on the average of three test runs, not four, as indicated in the ASTM reference. We feel that the final results would not have been significantly different had the samples been allowed to run until all the requirements of ASTM D 5084 had been met. These three samples approached the lower limit of permeability for most naturally occurring soils.

Appendix A

Karmen Deane
IT Corporation
March 16, 1994
Client Project ID: TINKER AFB
ETDC Project No.: 483500.094.04

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CROSS-REFERENCE LIST

ETDC SAMPLE NO.	CLIENT SAMPLE NO.
ETDC-4676	B311255-05A
ETDC-4677	B311255-05B
ETDC-4678	B311256-05A
ETDC-4679	B311256-05B
ETDC-4680	B311256-06A
ETDC-4681	B311256-06B
ETDC-4684	B311282-05A
ETDC-4685	B311282-05B
ETDC-4690	B311314-01A
ETDC-4691	B311314-01B
ETDC-4692	B311314-02A
ETDC-4693	B311314-02B

Appendix B

Karmen Deane
IT Corporation
March 16, 1994
Client Project ID: TINKER AFB
ETDC Project No.: 483500.094.04

IT ENVIRONMENTAL TECHNOLOGY
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(615) 482-6497

PARTICLE SIZE ANALYSIS
ASTM D 422

Project Name: Tinker AFB

Client No. B311255-05A

Project Number: 483500.094.04

ETDC No. ETDC-4676

Specific Gravity 2.6500 Assumed

Moisture Content = 10.7%

SIEVE ANALYSIS

	Sieve No.	Diameter mm	Percent Finer
COARSE	3"	75.000	100.0%
	1.5"	37.500	100.0%
	0.75"	19.000	100.0%
	0.375"	9.500	100.0%
	#4	4.750	100.0%
	#10	2.000	98.8%

	Sieve No.	Diameter mm	Percent Finer
FINE	#20	0.850	97.8%
	#40	0.425	96.2%
	#60	0.250	94.8%
	#100	0.149	92.2%
	#140	0.106	89.7%
	#200	0.075	87.3%

HYDROMETER ANALYSIS

	Diameter mm	Percent Finer
HYDROMETER		
	0.04243	78.5%
	0.03065	74.1%
	0.01978	68.6%
	0.01176	60.8%
	0.00848	50.9%
	0.00603	45.3%
	0.00426	40.9%
	0.00300	32.1%
	0.00128	25.4%

Karmen Deane
IT Corporation
March 16, 1994
Client Project ID: TINKER AFB
ETDC Project No.: 483500.094.04

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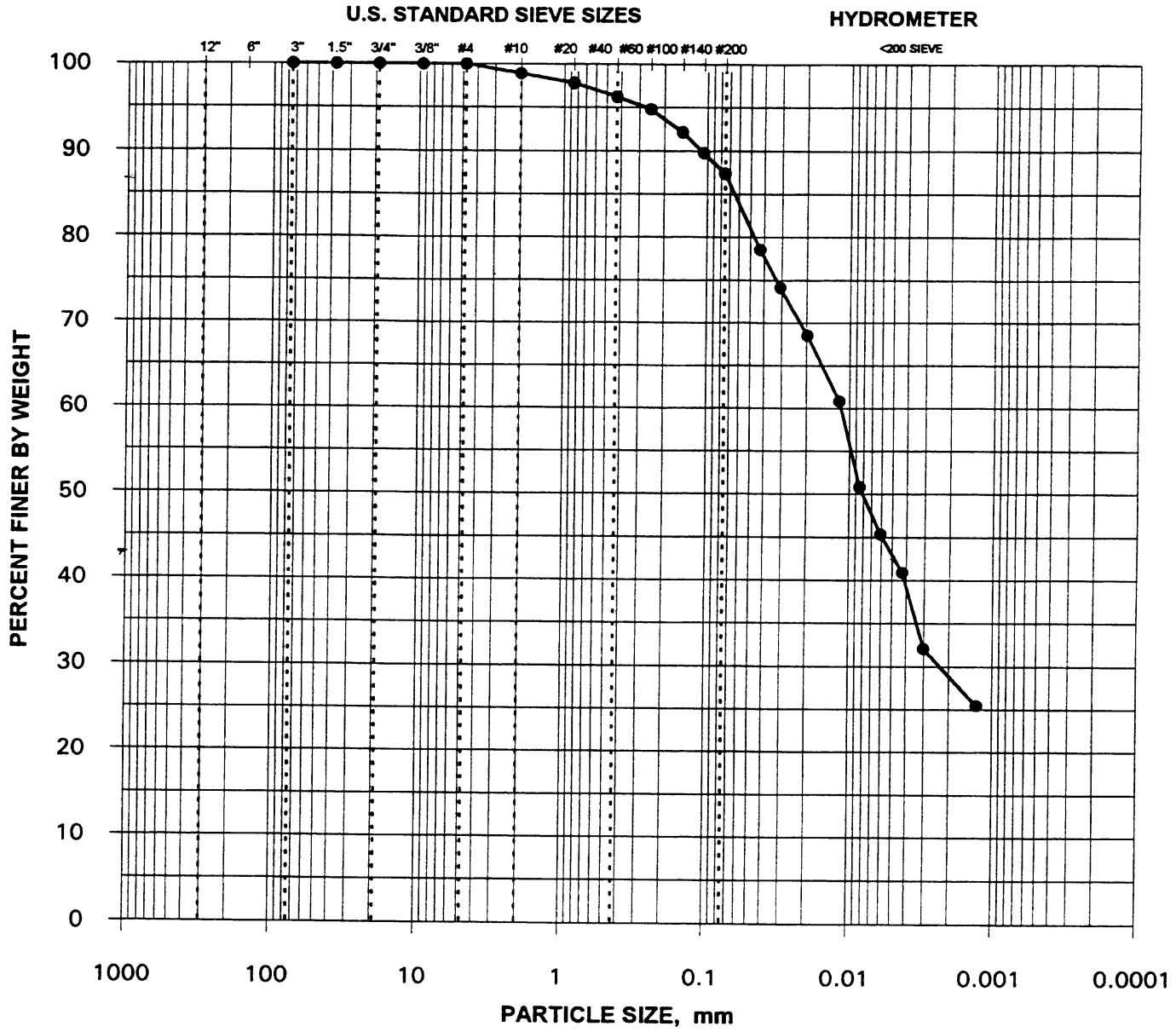
Tinker AFB



CLIENT SAMPLE NO. B311255-05A

ETDC SAMPLE NO. ETDC-4676

BOULDERS	COBBLES	GRAVEL		SAND			
		COARSE	FINE	COARSE	MEDIUM	FINE	

SILT 2 - 75 microns

CLAY <2 microns

Karmen Deane
IT Corporation
March 16, 1994
Client Project ID: TINKER AFB
ETDC Project No.: 483500.094.04

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PARTICLE SIZE ANALYSIS
ASTM D 422

Project Name: Tinker AFB

Client No. B311282-05A

Project Number: 483500.094.04

ETDC No. ETDC-4684

Specific Gravity 2.6500 Assumed

Moisture Content = 9.4%

SIEVE ANALYSIS

	Sieve No.	Diameter mm	Percent Finer
COARSE	3"	75.000	100.0%
	1.5"	37.500	100.0%
	0.75"	19.000	100.0%
	0.375"	9.500	100.0%
	#4	4.750	99.9%
	#10	2.000	99.6%

	Sieve No.	Diameter mm	Percent Finer
FINE	#20	0.850	98.9%
	#40	0.425	97.8%
	#60	0.250	96.9%
	#100	0.149	95.6%
	#140	0.106	93.7%
	#200	0.075	89.9%

HYDROMETER ANALYSIS

	Diameter mm	Percent Finer
HYDROMETER	0.05460	83.5%
	0.04040	73.6%
	0.02933	67.6%
	0.01912	60.6%
	0.01146	51.7%
	0.00823	46.7%
	0.00594	40.8%
	0.00428	35.8%
	0.00303	29.8%
	0.00128	22.9%

Karmen Deane
IT Corporation
March 16, 1994
Client Project ID: TINKER AFB
ETDC Project No.: 483500.094.04

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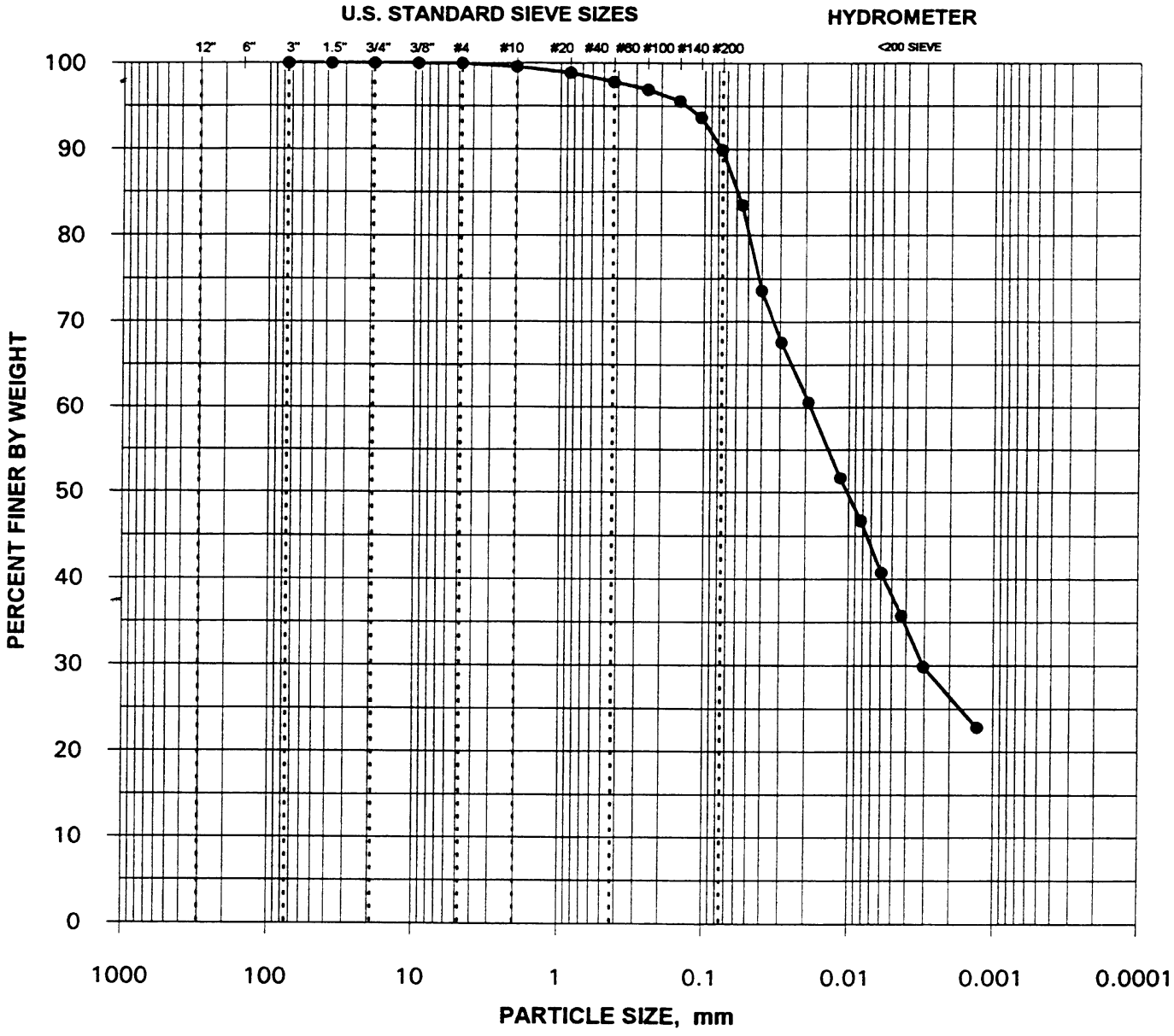
Tinker AFB



CLIENT SAMPLE NO. B311282-05A

ETDC SAMPLE NO. ETDC-4684

BOULDERS	COBBLES	GRAVEL		SAND			SILT 2 - 75 microns CLAY <2 microns
		COARSE	FINE	COARSE	MEDIUM	FINE	

Karmen Deane
IT Corporation
March 16, 1994
Client Project ID: TINKER AFB
ETDC Project No.: 483500.094.04

IT ENVIRONMENTAL TECHNOLOGY
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OAK RIDGE, TN
(615) 482-6497

MOISTURE CONTENT
ASTM D 2216

PROJECT NAME: TINKER AFB **PROJECT NUMBER:** 483500.094.04

ETDC SAMPLE NO.	CLIENT SAMPLE NO.	MOISTURE CONTENT
ETDC-4676	B311255-05A	10.7%
ETDC-4678	B311256-05A	8.5%
ETDC--4680	B311256-06A	9.6%
ETDC-4684	B311282-05A	9.4%
ETDC-4690	B311314-01A	12.2%
ETDC-4692	B311314-01A	12.9%

Karmen Deane
IT Corporation
March 16, 1994
Client Project ID: TINKER AFB
ETDC Project No.: 483500.094.04

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CATION EXCHANGE CAPACITY
EPA SW-846
METHOD 9081

PROJECT NAME: TINKER AFB PROJECT NUMBER: 483500.094.04

ETDC SAMPLE NUMBER	CLIENT SAMPLE NUMBER	WEIGHT OF SAMPLE, GRAMS	SODIUM CONCENTRATION, MG/L	CATION EXCHANGE CAPACITY, MEQ/100 GRAMS	RPD % *
ETDC-4676	B311255-05A	6.00	328.0	23.78	
ETDC-4678	B311256-05A	6.02	77.6	5.61	
ETDC-4678DUP.	B311256-05A	6.05	80.2	5.77	2.8
ETDC-4680	B311256-06A	6.05	122.0	8.77	
ETDC-4684	B311282-05A	6.09	231.0	16.50	
ETDC-4690	B311314-01A	6.08	338.0	24.18	
ETDC-4692	B311314-02A	6.18	274.0	19.29	

*RPD = RELATIVE PERCENT DIFFERENCE FOR ORIGINAL & DUPLICATE SAMPLES

Karmen Deane
IT Corporation
March 16, 1994
Client Project ID: TINKER AFB
ETDC Project No.: 483500.094.04

IT ENVIRONMENTAL TECHNOLOGY
DEVELOPMENT CENTER
OAK RIDGE, TN
(615) 482-6497

PERMEABILITY RESULTS

ETDC SAMPLE NO.	CLIENT SAMPLE NO.	LENGTH/ DIAMETER/ WEIGHT	COEFF. OF PERMEABILITY
ETDC-4677	B311255-05B	2.547 cm/ 3.464 cm/ 49.16 grams	3.2 E-9 cm/s
ETDC-4679	B311256-05B	4.752 cm/ 3.556 cm/ 83.51 grams	2.3 E-6 cm/s
ETDC-4681	B311256-06B	4.214 cm/ 3.585 cm/ 85.36 grams	9.2 E-7 cm/s
ETDC-4685	B311282-05B	5.318 cm/ 3.522 cm/ 107.14 grams	2.9 E-9 cm/s
ETDC-4691	B311314-01B	4.844 cm/ 3.494 cm/ 103.65 grams	2.6 E-9 cm/s
ETDC-4692	B311314-02A	3.979 cm/ 3.490 cm/ 81.88 grams	2.9 E-9 cm/s

INTERNATIONAL TECHNOLOGY CORPORATION

B311255

48350 094.04

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Routrl to CF, TL 1 3/21/94

Reference Document No.

Page 1 of 1

Project Name/No.[1] Tinker 5001

Sample Team Members[2] Client

Profit Center No.[3] 4627

Project Manager[4] Karmen Deane

Purchase Order No.[6] will follow

Required Report Date[11]

Samples Shipment Date[7] 11-22-93

Lab Destination[8] ETDC

Lab Contact[9] B. Leaman

Project Contact/Phone[12] 512 892 6684

Carrier/Waybill No.[13] Fed X

Bill to:[5] ITAS Austin

Report to:[10] ITAS Austin Karmen Deane

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Pre-servative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
B311255-05A	2-63A Soil	11-19-93 0906	Sleeve	X1	4°C	CEC_A, GRAIN, MOIS_G	ETDC OK 4676	
-05B	2-63A	↓	↓	↓	↓	V_Perm	ETDC 4677	
B311256-05A	J5427	11-18-93 1020	Sleeve	X1	4°C	CEC_A, GRAIN, MOIS_G	ETDC 4678	
-05B	↓	↓	↓	X1	↓	V_Perm	ETDC 4679	
-06A	J5428	11-18-93 1115	↓	X1	↓	CEC_A, GRAIN, MOIS_G	ETDC 4680	
-06B	↓	↓	~	~		V_PERM	ETDC 4681	

Special Instructions:[23]

Possible Hazard Identification:[24] Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal:[25] Return to Client ☐ Disposal by Lab ☑ Archive ☐ (more)

Turnaround Time Required:[26] Normal ☑ Rush ☐

QC Level:[27] I. ☐ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by[28] (Signature/Affiliation) Karmen Deane IT	Date: 11-22-93 Time: 1700	1. Received by[28] (Signature/Affiliation) Joel A. Stevens IT	Date: 11-23-93 Time: 1630
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments:[29]

White: To accompany samples Yellow: Field copy *See back of form for special instructions

483500.074.04 Routed to CI TZ, KH 3/21

INTERNATIONAL TECHNOLOGY CORPORATION Tinker Soil

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 417414

Page 1 of 1

Project Name/No.[1] B311282

Sample Team Members[2] Client

Profit Center No.[3] 4627

Project Manager[4] Karmen Deane

Purchase Order No.[6] Will Follow

Required Report Date[11] 12/14/93

Samples Shipment Date[7] 11-23-93

Lab Destination[8] ETDC

Lab Contact[9]

Project Contact/Phone[12] (512) 892-6684

Carrier/Waybill No.[13] Fed-Ex 188 2117 291

Bill to:[5] ITAS Austin

Report to:[10] ITAS Austin
Karmen Deane

White: To accompany samples Yellow: Field copy

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Preservative[19]	Requested Testing Program[20]	Condition on[21]	Disposal Record No.[22]
B311282-05A	J5428[illegible]3	11-22-93 0815	Sleeve	~~X1~~ 11-23-93 X1	Ice	CEC-A MOIST-G GRAIN	ETDC OK 4684	
B311282-05B	J5428[illegible]2	11-22-93 0815	Sleeve	X1	Ice	V-Perm	ETDC 4685	
					11-23-93 DC			

Special Instructions:[23]

Possible Hazard Identification:[24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal:[25]
Return to Client ☐ Disposal by Lab ☑ Archive ____ (mos.)

Turnaround Time Required:[26]
Normal ☑ Rush ☐

QC Level:[27]
I. ☐ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by[28] (Signature/Affiliation) IT Corp	Date: 11-23-93 Time: 1700	1. Received by[28] (Signature/Affiliation) IT	Date: 11-24-93 Time: 1235
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments:[29]

*See back of form for special instructions